9-2350-222-20-2-3-2

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# TECHNICAL MANUAL

## ORGANIZATIONAL
## MAINTENANCE MANUAL

## VOLUME III - PART 2
## MAINTENANCE

# TURRET
# FOR
# COMBAT ENGINEER VEHICLE,
# M728
# (2350-00-795-1797)

READEX FICHE best copy available

HEADQUARTERS, DEPARTMENT OF THE ARMY
SEPTEMBER 1980

D 101.11:

## WARNING

### BE CAREFUL: CARBON MONOXIDE IS A GAS THAT CAN KILL YOU

Carbon monoxide always comes when something gets hot or burns - such as heaters, engines, etc. To keep carbon monoxide from making anyone sick or drowsy, there must be plenty of fresh air in the place where the heating or burning takes place. This gas has no color and no smell, but it is deadly poisonous. It can damage your brain, or kill you, if you do not have enough fresh air coming in to push the carbon monoxide out.

Follow these rules to keep from getting poisoned:

1. Do not operate engine or heater inside a building unless there is plenty of fresh air coming in.
2. Do not idle an engine unless you are sure there is plenty of fresh air in personnel compartments.
3. Do not drive a vehicle which has inspection plates, cover plates or engine compartment doors taken off, except for very short maintenance times when necessary.
4. When operating vehicle, always be on the lookout for personnel who seem to be getting sick or drowsy. If you notice this happening, immediately get fresh air into personnel compartments. If this does not help, remove sick or drowsy personnel from vehicle and do following:

   a. Put him into fresh air.

   b. Keep him covered warm.

   c. Keep him still. Do not let him exercise. (Exercise will make him worse.)

   d. Give him artificial respiration, if necessary.

   e. Get medical help.

**WARNING**

**WARNING**
**RADIATION HAZARD**

Azimuth dial pointers in indicator may be tipped with radioactive material. This becomes dangerous when dial window is broken or removed. When this happens, make repairs as soon as possible.

If dial window is broken or removed, all maintenance must be done at depot level only, except replacement of lamps or replacement of whole indicator unit.

Protecting, handling, storing, and getting rid of radioactive material must be done in accordance with TB MED-232 and TB 750-237.

**WARNING**

When placing the turret (elev/trav) power switch in the ON position, ensure that the gunner's power control handles are not displaced. If handles are displaced, rapid movements of the turret traverse in azimuth may result in fatal injury.

**WARNING**

When turret is in the power mode the gun will elevate and depress without depressing the magnetic brake switch on the gunner's control handles.

**WARNING**

Assure crew are in safe positions and driver has lowered his seat and has head down before operating in power or manual traversing or elevating modes.

**WARNING**

Do not release magnetic brake switch or override in magnetic brake actuator while traversing until gunner's or commander's power control is returned to neutral position. This will reduce unnecessary wear and/or damage to magnetic brake.

**WARNING**

Be careful when working around pressurized parts. Hydraulic fluid under pressure can hurt you.

**WARNING**

Before charging main accumulator, hydraulic system pressure must be lowered to 0 psi. Hydraulic fluid under pressure can hurt you.

**WARNING**

Before draining hydraulic system, presure must be lowered to 0 psi. Hydraulic fluid under pressure can hurt you.

**WARNING**

Before removing hydraulic tubes, hydraulic system pressure must be lowered to 0 psi. Hydraulic fluid under pressure can hurt you.

**WARNING**

Before traversing turret, make sure gun will not hit anything if turret is traversed. If necessary, move vehicle.

**WARNING**

Nitrogen under pressure can hurt you. Keep fingers and hands clear of valve while letting out nitrogen. Let nitrogen out slowly.

Technical Manual
No. 9-2530-222-20-2-3-2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
Washington, D.C., 15 September 1980

# Technical Manual

# Organizational Maintenance

# TURRET

# FOR

# COMBAT ENGINEER VEHICLE

# M728

(2350-00-795-1797)

## REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know.

Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to:

Commander
U.S. Army Armament Materiel Readiness Command
ATTN: DRSAR-MAS
Rock Island, IL 61299

A reply will be furnished to you.

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*This manual in conjunction with TM 9-2350-222-20-2-1, TM 9-2350-222-20-2-2-1, TM 9-2350-222-20-2-2-2, TM 9-2350-222-20-2-3-1, TM 9-2350-222-20-2-3-3 supersedes the turret portion of TM 9-2350-222-20, September 1965, including all changes.

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# CHAPTER 15

# IR PERISCOPE SPARE HEAD STOWAGE BOX

## 15-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | |
|---|---|---|---|---|
| Equipment Item | Removal | Installation | Disassembly | Assembly |
| IR Periscope Spare Head Stowage Box | 15-2 | 15-3 | 15-4 | 15-5 |

## 15-2. IR PERISCOPE SPARE HEAD STOWAGE BOX REMOVAL PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
7/16 open end wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to:
Traverse turret
Set traverse lock to LOCKED

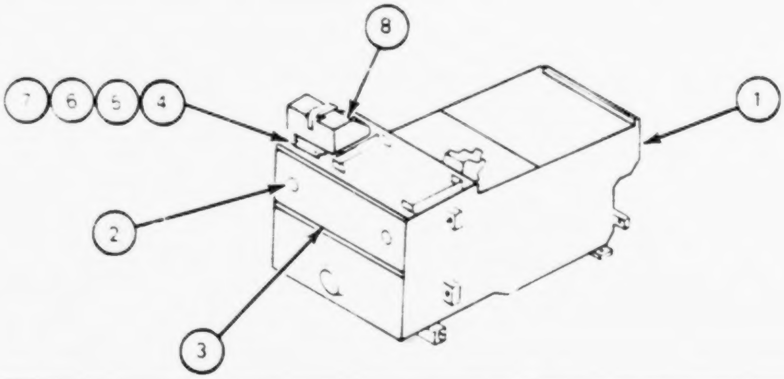
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
IR periscope spare head removed from stowage box

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open door (3). |
| 4. | Using screwdriver and wrench, remove four screws (4), four lockwashers (5), four flat washers (6), and four nuts (7) that hold IR periscope spare head stowage box (8) on periscope stowage box (1). Remove IR periscope spare head stowage box. |
| 5. | Close door (3) of periscope stowage box (1).<br>END OF TASK |



## 15-3. IR PERISCOPE SPARE HEAD STOWAGE BOX INSTALLATION PROCEDURE

TOOLS: Cross tip screwdriver (stubby) (Phillips)
7/16" open end wrench
3/8" drive torque wrench (0 to 150 inch-pounds)
7/16" socket (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

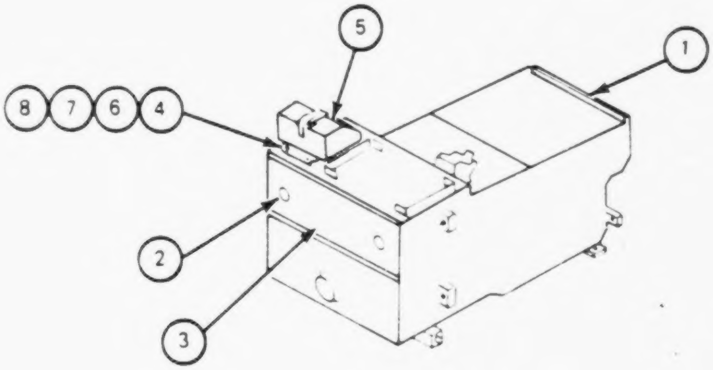
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

PRELIMINARY PROCEDURES: Install periscope stowage box (para 19-3)

## 15-3. IR PERISCOPE SPARE HEAD STOWAGE BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open door (3). |
|  | **NOTE**<br>Put in four screws (4) with screw head inside periscope stowage box (1). |
| 4. | Using screwdriver and wrench, attach IR periscope spare head stowage box (5) to periscope stowage box (1) with four screws (4), four lockwashers (6), four flat washers (7), and four nuts (8). Torque four nuts (8) to between 48 and 60 inch-pounds. |
| 5. | Close door (3) of stowage box (1). |
|  | END OF TASK |



## 15-4. IR PERISCOPE SPARE HEAD STOWAGE BOX DISASSEMBLY PROCEDURE

TOOLS: Putty knife

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove IR periscope spare head stowage box (para 15-2)

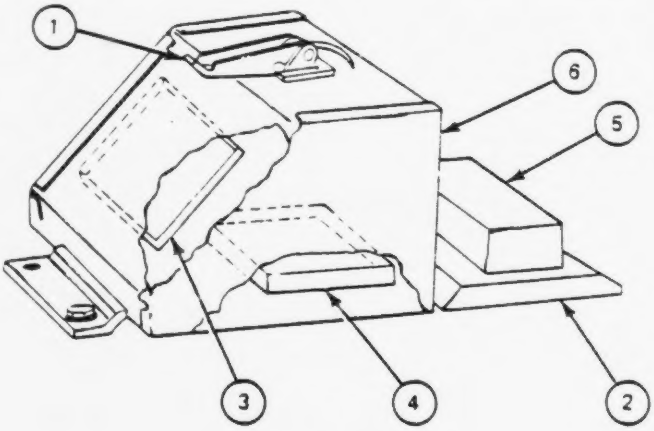
GENERAL INSTRUCTIONS:

**NOTE**

Only parts that are bad and need to be replaced should be removed.

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Operate latch (1) and open door (2). |
| 2. | Using putty knife, remove pad (3), pad (4), and pad (5) from box (6) as required. |
| | END OF TASK |



## 15-5. IR PERISCOPE SPARE HEAD STOWAGE BOX ASSEMBLY PROCEDURE

SUPPLIES: Adhesive (item 4, App. A)
Brush (item 5, App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to use adhesives

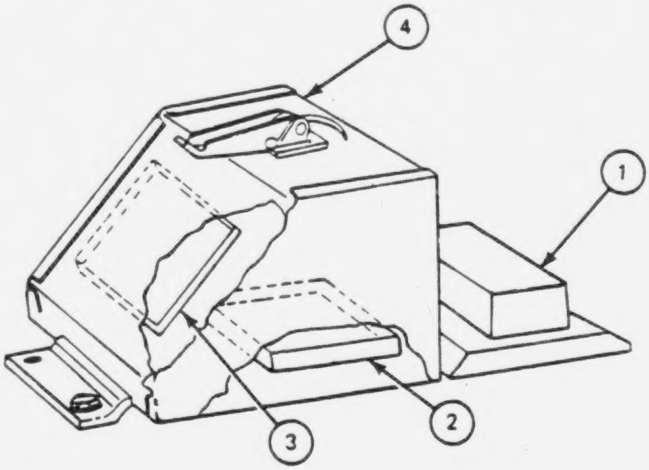
GENERAL INSTRUCTIONS:

**NOTE**

Only parts that are being replaced should be installed.

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using brush and adhesive, install pad (1), pad (2), and pad (3) in box (4) as required (JPG).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install IR periscope spare head stowage box (para 15-3).<br>END OF TASK |



# CHAPTER 16

# DRIVER'S NIGHT VIEWER STOWAGE BOX

## 16-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | |
|---|---|---|---|---|
| Equipment Item | Removal | Installation | Disassembly | Assembly |
| Driver's Night Viewer Stowage Box | 16-2 | 16-3 | 16-4 | 16-5 |

## 16-2. DRIVER'S NIGHT VIEWER STOWAGE BOX REMOVAL PROCEDURE

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Depress main gun
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

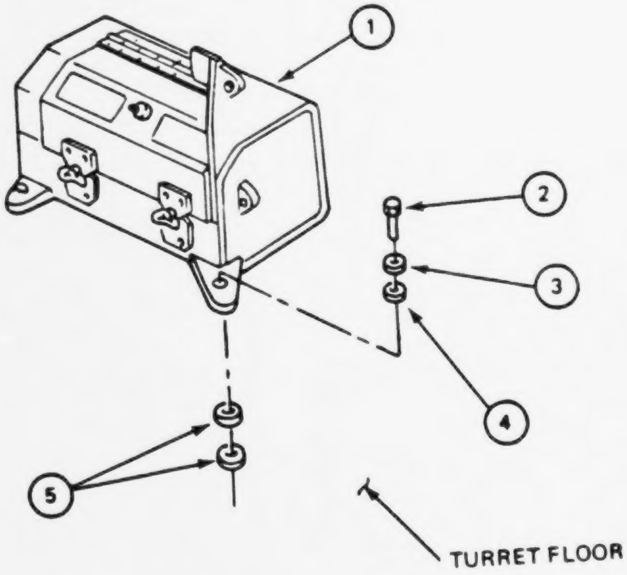
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
All loose equipment removed from driver's night viewer stowage box

PRELIMINARY PROCEDURES: Remove oddment stowage box (para 21-2)
Remove rations box (para 18-2)

## 16-2. DRIVER'S NIGHT VIEWER STOWAGE BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until driver's night viewer stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Depress main gun as far as possible (TM-10). |
| 4. | Using wrench, remove two screws (2), two lockwashers (3), and two flat washers (4) that attach driver's night viewer stowage box (1) to turret floor. |
| 5. | Remove driver's night viewer stowage box (1). |
| 6. | Remove shims (5) (if present) from turret floor. |
|  | END OF TASK |



## 16-3. DRIVER'S NIGHT VIEWER STOWAGE BOX INSTALLATION PROCEDURE

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Depress main gun
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

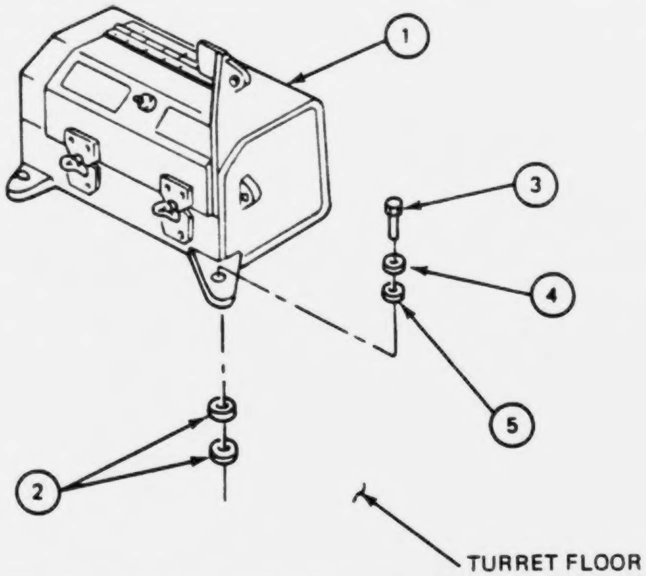
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 16-3. DRIVER'S NIGHT VIEWER STOWAGE BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until driver's night viewer stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Depress main gun as far as possible (TM-10). |
| 4. | Place driver's night viewer stowage box (1) in position on turret floor. |
| 5. | Check and put shims (2) (two maximum), as required, under each leg of driver's night viewer stowage box (1) to level with turret floor. |
| 6. | Using wrench, attach driver's night viewer stowage box (1) to turret floor with two screws (3), two lockwashers (4) and two flat washers (5). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install rations box (para 18-3).<br>Install oddment stowage box (para 21-3). |
|  | END OF TASK |



## 16-4. DRIVER'S NIGHT VIEWER STOWAGE BOX DISASSEMBLY PROCEDURE

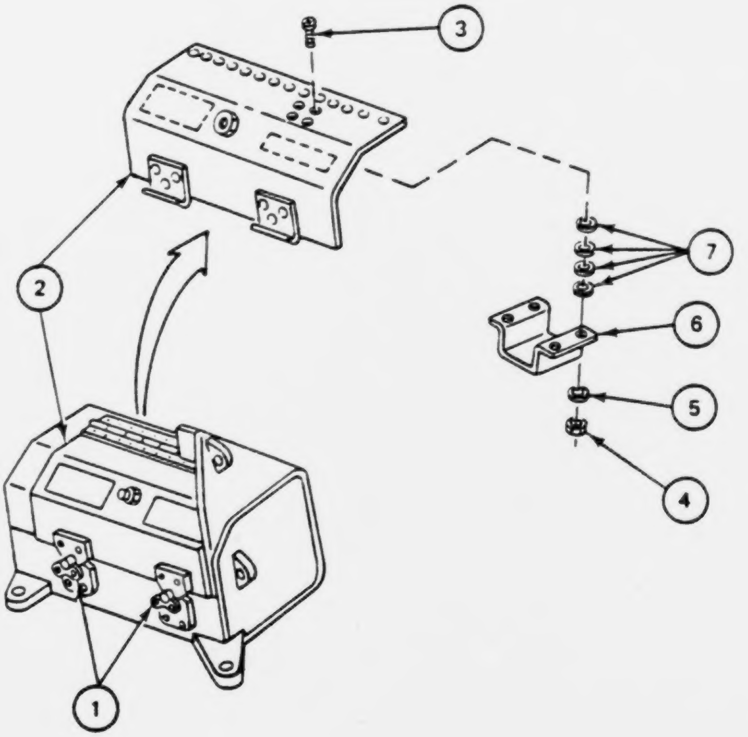
TOOLS: 7/16" combination wrench
No. 3 cross tip screwdriver (Phillips)

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove driver's night viewer stowage box (para 16-2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open two latches (1) and open door (2). |
| 2. | Using screwdriver and wrench, remove four screws (3), four nuts (4), four lockwashers (5), bracket (6), and sixteen flat washers (7).<br>END OF TASK |



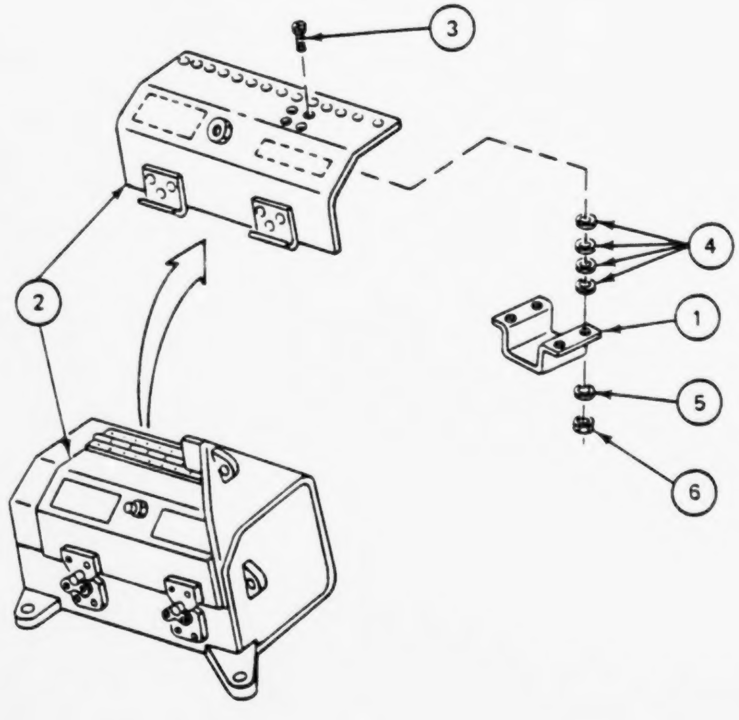
## 16-5. DRIVER'S NIGHT VIEWER STOWAGE BOX ASSEMBLY PROCEDURE

TOOLS: 7/16" combination wrench
No. 3 cross tip screwdriver (Phillips)

PERSONNEL: One

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver and wrench, attach bracket (1) to door (2) with four screws (3), sixteen flat washers (4), four lockwashers (5), and four nuts (6).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install driver's night viewer stowage box (para 16-3).<br>END OF TASK |



# CHAPTER 17

# DRIVER'S NIGHT VIEWER

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17-1. Procedures to remove and install the driver's night viewer are in TM 9-2350-222-10.

# CHAPTER 18

# RATIONS BOX

## 18-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Rations Box | 18-2 | 18-3 |

## 18-2. RATIONS BOX REMOVAL PROCEDURE

APPLICABLE CONFIGURATIONS: M728 with driver's night viewer

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to depress main gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

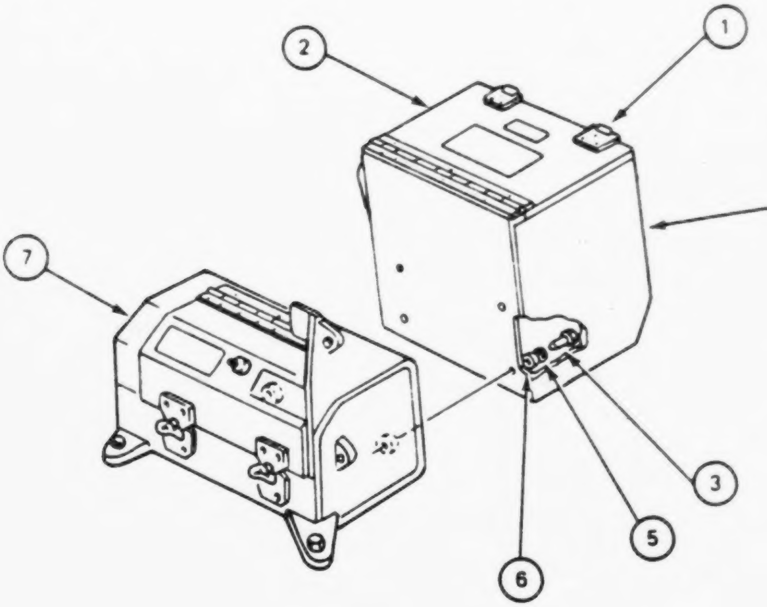
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
All loose equipment removed from rations box
Turret traverse lock set to LOCKED

PRELIMINARY PROCEDURES: Remove oddment stowage box (para 21-2)

## 18-2. RATIONS BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Depress main gun as far as possible (TM-10). |
| 2. | Open two latches (1) and open door (2) to provide access to screws (3). |
| 3. | Using wrench, reach inside rations box (4) and remove four screws (3), four lockwashers (5), and four flat washers (6) that attach rations box to driver's night viewer stowage box (7). |
| 4. | Close door (2) and two latches (1). |
| 5. | Remove rations box (4). |
|  | END OF TASK |



## 18-3. RATIONS BOX INSTALLATION PROCEDURE

APPLICABLE CONFIGURATIONS: M728 with driver's night viewer

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to depress main gun

EQUIPMENT LOCATION INFORMATION:

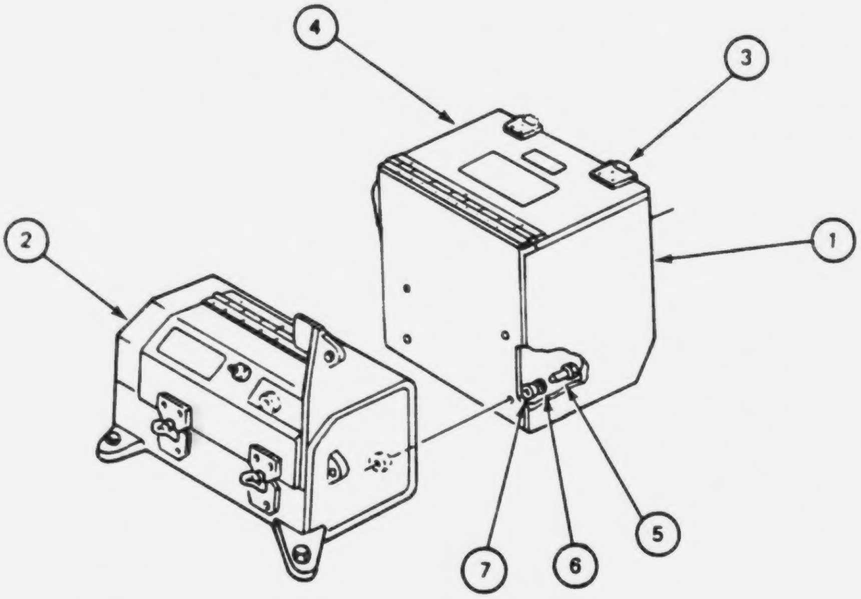
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

## 18-3. RATIONS BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Depress main gun as far as possible (TM-10). |
| 2. | Place rations box (1) against driver's night viewer stowage box (2). |
| 3. | Open two latches (3) and open door (4) to get inside ration box (1). |
| 4. | Using hands, reach inside rations box (1) and loosely attach rations box with four screws (5), four lockwashers (6), and four flat washers (7). |
| 5. | Install oddment stowage box **(para 21-3).** |
| 6. | Using wrench, tighten four screws (5) from step 4. |
| | END OF TASK |

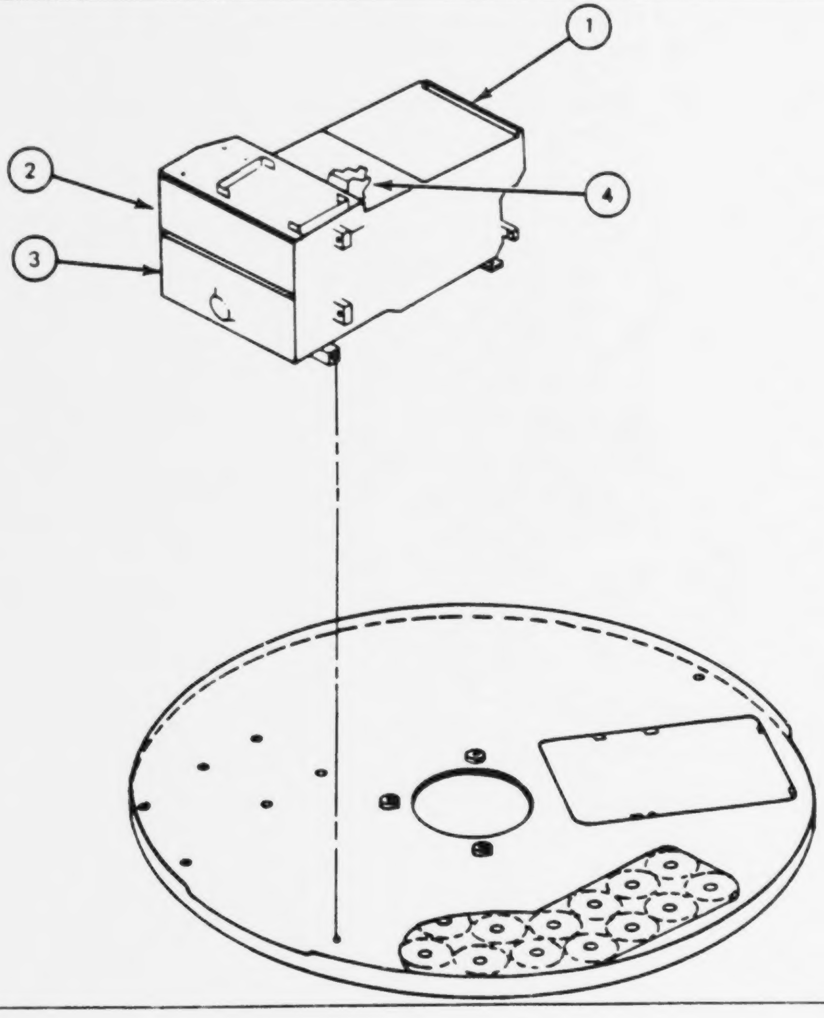


# CHAPTER 19

# PERISCOPE STOWAGE BOX

## 19-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| 1. Periscope Stowage Box | 19-2 | 19-3 |
| 2. Top Front Door | 19-4 | 19-5 |
| 3. Bottom Front Door | 19-6 | 19-7 |
| 4. Hinged Plate | 19-8 | 19-9 |



## 19-2. PERISCOPE STOWAGE BOX REMOVAL PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
6" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to:
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

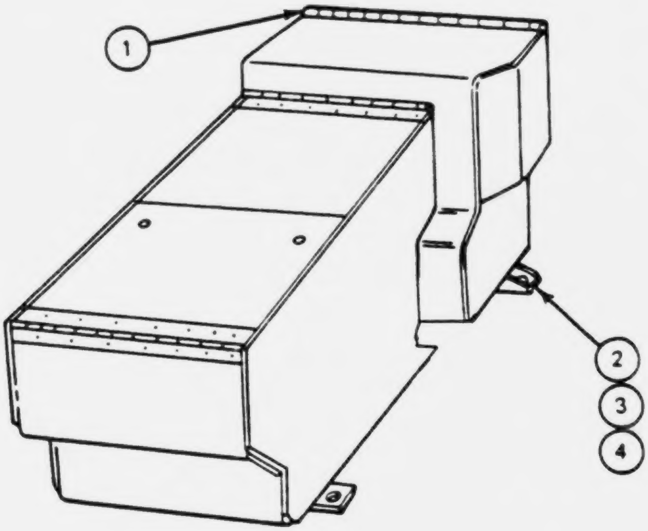
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
All loose equipment and periscopes removed from periscope stowage box

PRELIMINARY PROCEDURES: Remove IR periscope spare head stowage box (para 15-2)

## 19-2. PERISCOPE STOWAGE BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Using socket wrench, remove four screws (2), four lockwashers (3) and four flat washers (4) that hold periscope stowage box (1) on turret floor. |
| 4. | Tell support maintenance personnel to remove commander's cupola. |
| 5. | Remove periscope stowage box (1) through opening for commander's cupola. |
| | END OF TASK |



## 19-3. PERISCOPE STOWAGE BOX INSTALLATION PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
6 extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

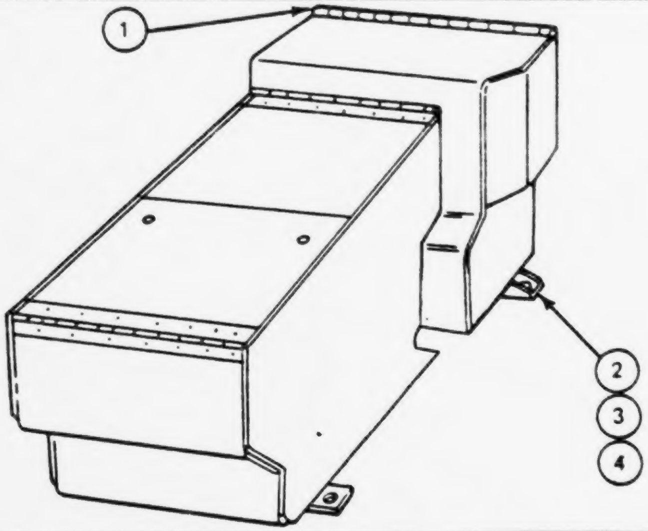
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Commander's cupola removed

## 19-3. PERISCOPE STOWAGE BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put periscope stowage box (1) into tank through opening for commander's cupola. Place stowage box on turret floor. |
| 2. | Tell support maintenance personnel to install commander's cupola. |
| 3. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 4. | Set turret traverse lock to LOCKED (TM-10). |
| | **NOTE**<br>Periscope stowage box should be installed with slotted holes for four mounting screws (2) at a centered position. |
| 5. | Using socket wrench, attach periscope stowage box (1), with slots centered, to turret floor with four screws (2), four lockwashers (3) and four flat washers (4). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install IR periscope spare head stowage box (para 15-3). |
| | END OF TASK |



## 19-4. TOP FRONT DOOR REMOVAL PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
3/8" open end wrench
Hammer
Cold chisel (1/4" w cut, 4" lg)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED
JPG for procedure to remove rivets

EQUIPMENT LOCATION INFORMATION:

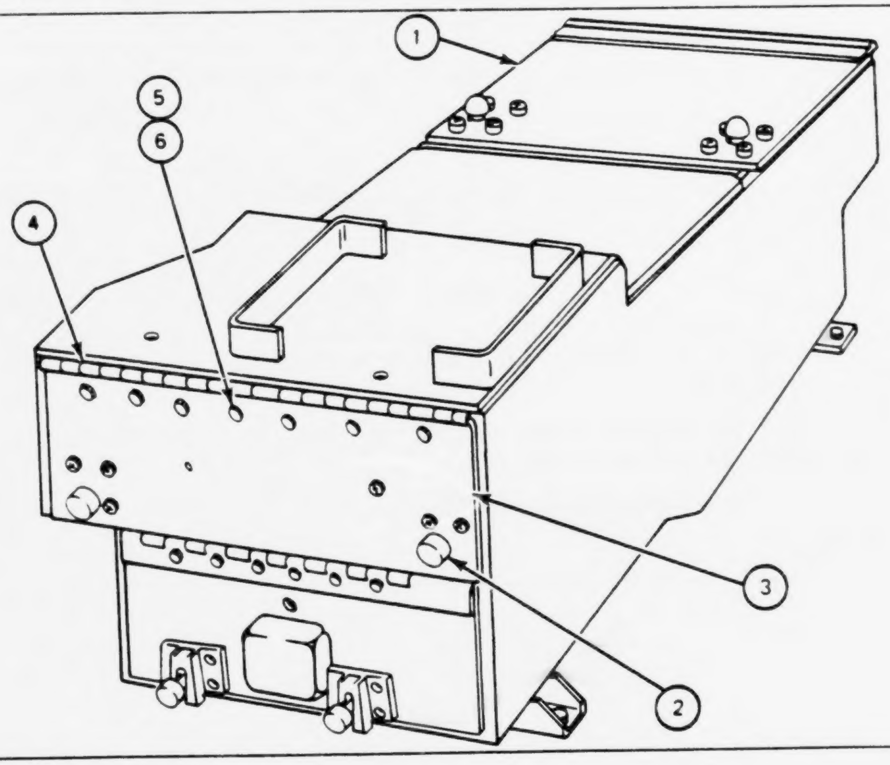
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Periscope removed from top compartment

## 19-4. TOP FRONT DOOR REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open top front door (3) of periscope stowage box (1). |
| | **NOTE**<br>If door (3) is attached to hinge (4) with rivets (5), go to step 5. If not, do step 4 only. |
| 4. | Using screwdriver and wrench, remove seven screws (5) and seven nuts (6) that hold door (3) on hinge (4) of periscope stowage box (1). Remove door. |
| 5. | Using hammer and chisel, remove seven rivets (5) that hold door (3) to hinge (4) of periscope stowage box (1) (JPG). |
| 6. | Remove door (3). |
| | END OF TASK |



## 19-5. TOP FRONT DOOR INSTALLATION PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
3/8" open end wrench

SUPPLIES: Screws, MS35207-264 (seven)
Nuts, MS21044-N3 (seven)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

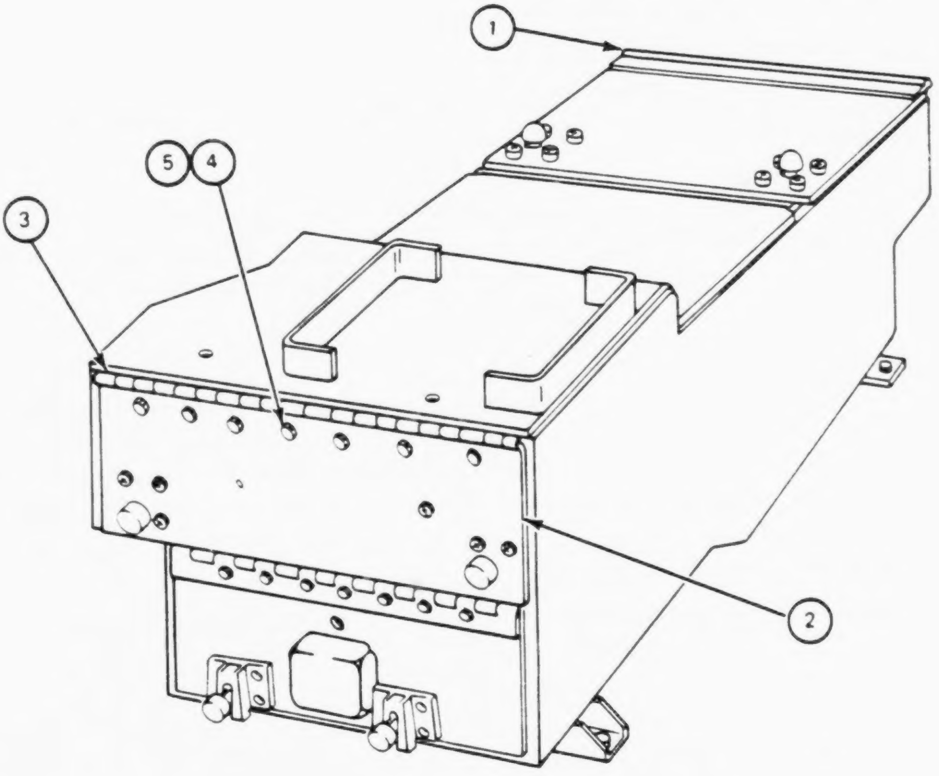
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Place back side of door (2) against hinge (3) of periscope stowage box (1) and hold in open position. |
| | **NOTE**<br>Put in screws (4) with screw head inside periscope stowage box (1). |
| 4. | Using screwdriver and wrench, attach door (2) to hinge (3) of periscope stowage box (1) with seven screws (4) and seven nuts (5). |
| 5. | Close door (2) of periscope stowage box (1). |
| | END OF TASK |



## 19-6. BOTTOM FRONT DOOR REMOVAL PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
3/8" open end wrench
Hammer
Cold chisel (1/4" w cut, 4" lg)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED
JPG for procedure to remove rivets

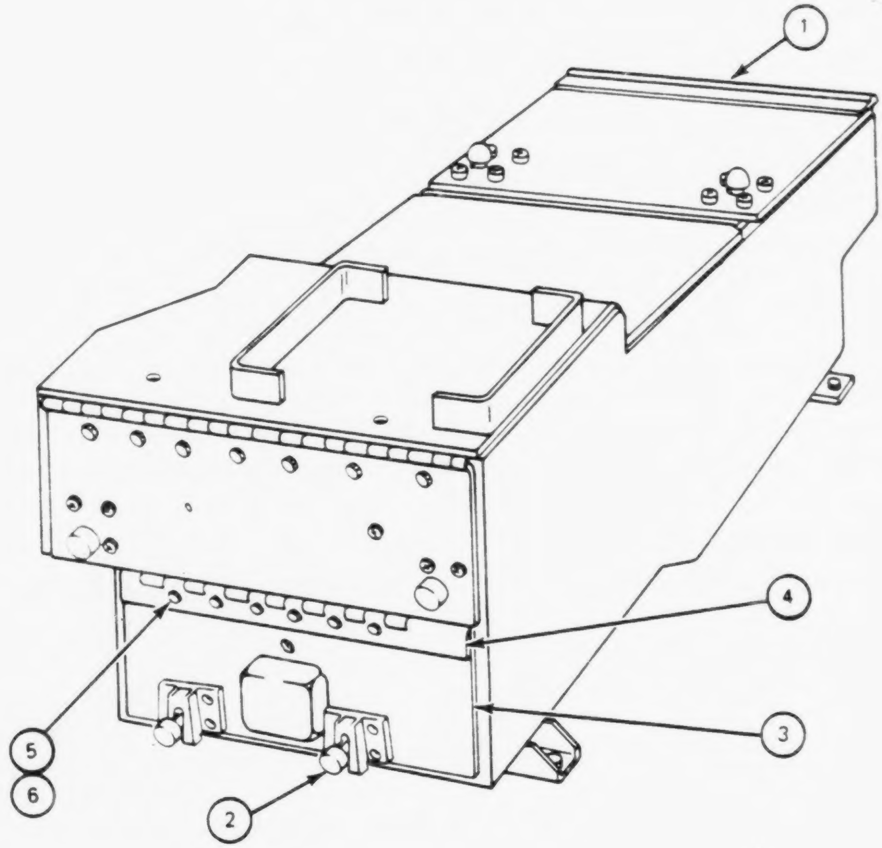
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Periscope head removed from bottom compartment

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open bottom front door (3) of periscope stowage box (1).<br>**NOTE**<br>If door (3) is attached to hinge (4) with rivets (5), go to step 5. If not, do step 4 only. |
| 4. | Using screwdriver and wrench, remove six screws (5) and six nuts (6) that hold door (3) on hinge (4) of periscope stowage box (1). Remove door. |
| 5. | Using hammer and chisel, remove six rivets (5) that hold door (3) to hinge (4) of periscope box (1) (JPG). |
| 6. | Remove door (3).<br>END OF TASK |



## 19-7. BOTTOM FRONT DOOR INSTALLATION PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
3/8 open end wrench

SUPPLIES: Screws, MS35207-264 (seven)
Nuts, MS21044-N3 (seven)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

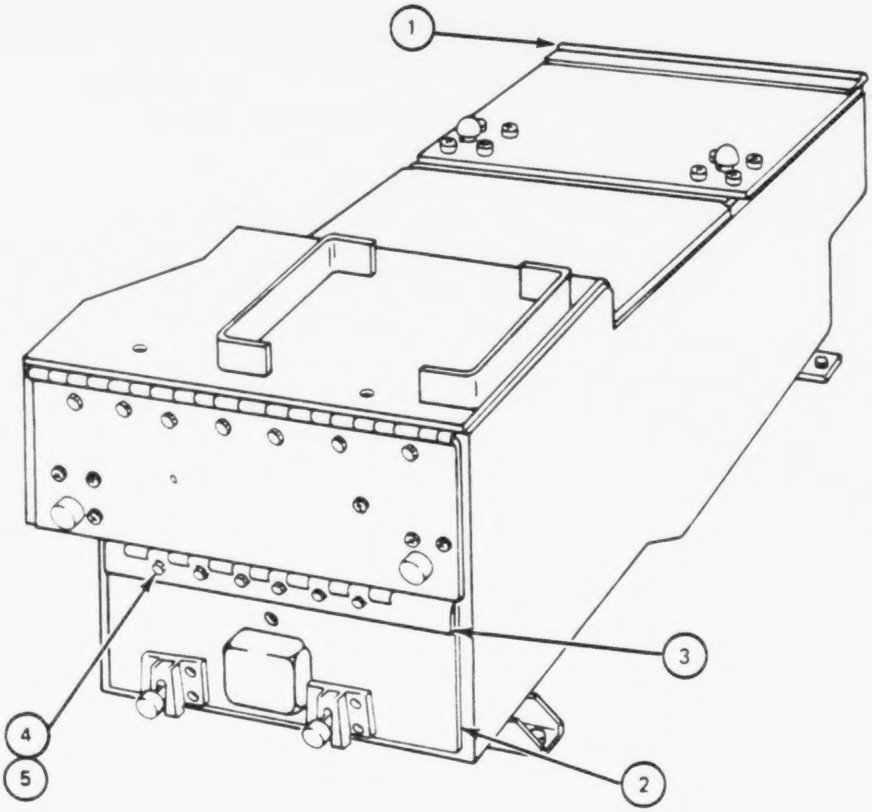
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Place front side of door (2) against hinge (3) of periscope stowage box (1) and hold in open position.<br>**NOTE**<br>Put in screws (4) with screw head inside periscope stowage box (1). |
| 4. | Using screwdriver and wrench, attach door (2) to hinge (3) of periscope stowage box (1) with six screws (4) and six nuts (5). |
| 5. | Close door (2) of periscope stowage box (1).<br>END OF TASK |



## 19-8. HINGED PLATE REMOVAL PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
7/16" open end wrench

SUPPLIES: Pencil

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

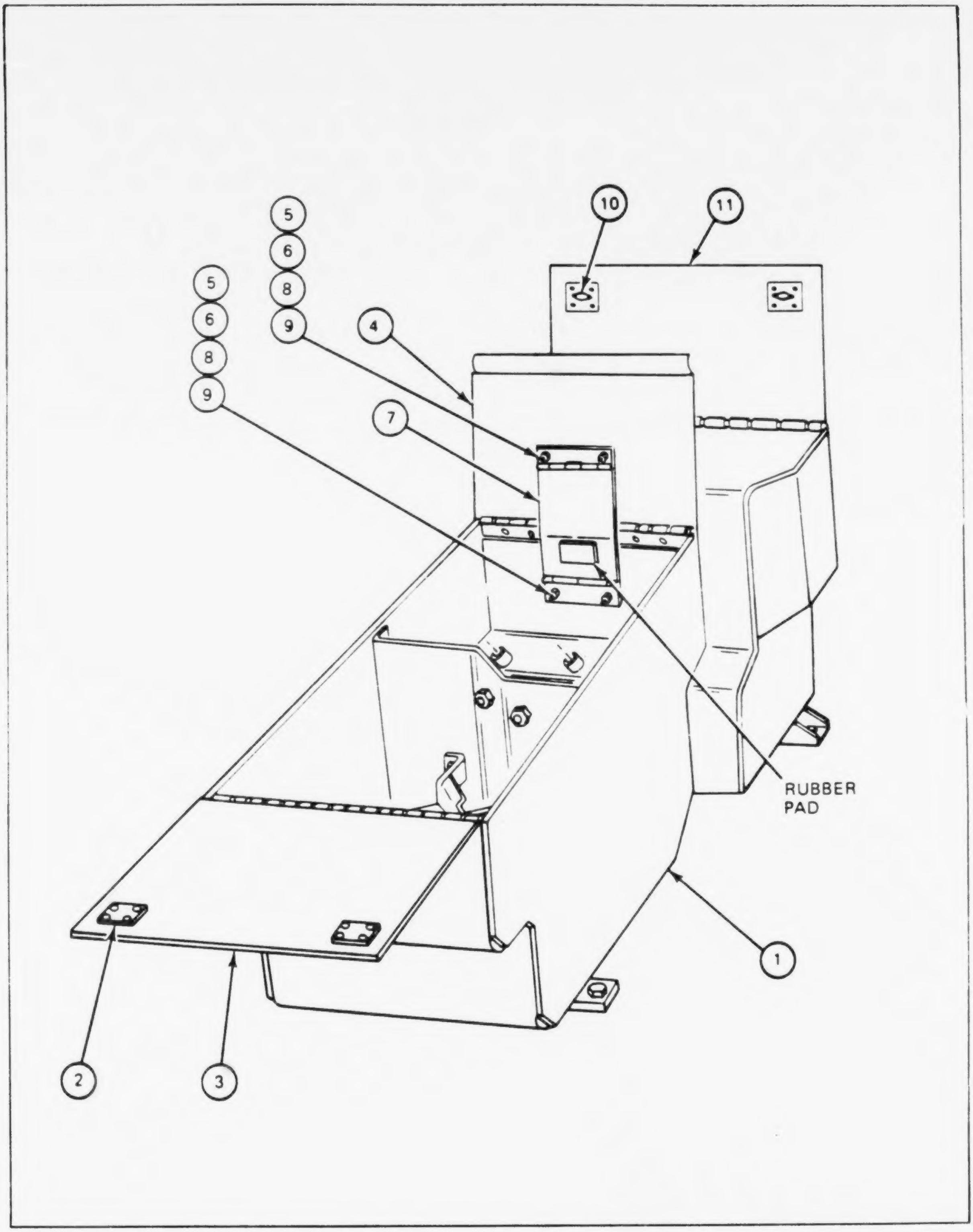
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Traverse Turret Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Periscope removed from top compartment
Commander's periscope head removed from center compartment

## 19-8. HINGED PLATE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open door (3). |
| 4. | Open door (4) to provide access to nuts (5). |
| | **NOTE**<br>Flat washers (6) under hinged plate (7) are used as shims to keep rubber pad of hinged plate against periscope head. The number of flat washers must be marked with pencil on periscope stowage box (1) near all four flat washer locations to help put them back (para 19-9). Also, use pencil to mark top of hinged plate near top holes so it can be put back in same position (para 19-9). |
| 5. | Using screwdriver and wrench, remove two screws (8), two lockwashers (9), two nuts (5) and flat washers (6) that attach hinged plate (7) to door (4). |
| 6. | Open two latches (10) and open door (11). |
| 7. | Using screwdriver and wrench, remove two screws (8), two lockwashers (9), two nuts (5) and flat washers (8) that hold hinged plate (7) on periscope stowage box (1). Remove hinged plate. |
| 8. | Close doors (4), (3), and (11). |
| | END OF TASK |


RUBBER
PAD

## 19-9. HINGED PLATE INSTALLATION PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
7/16" open end wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

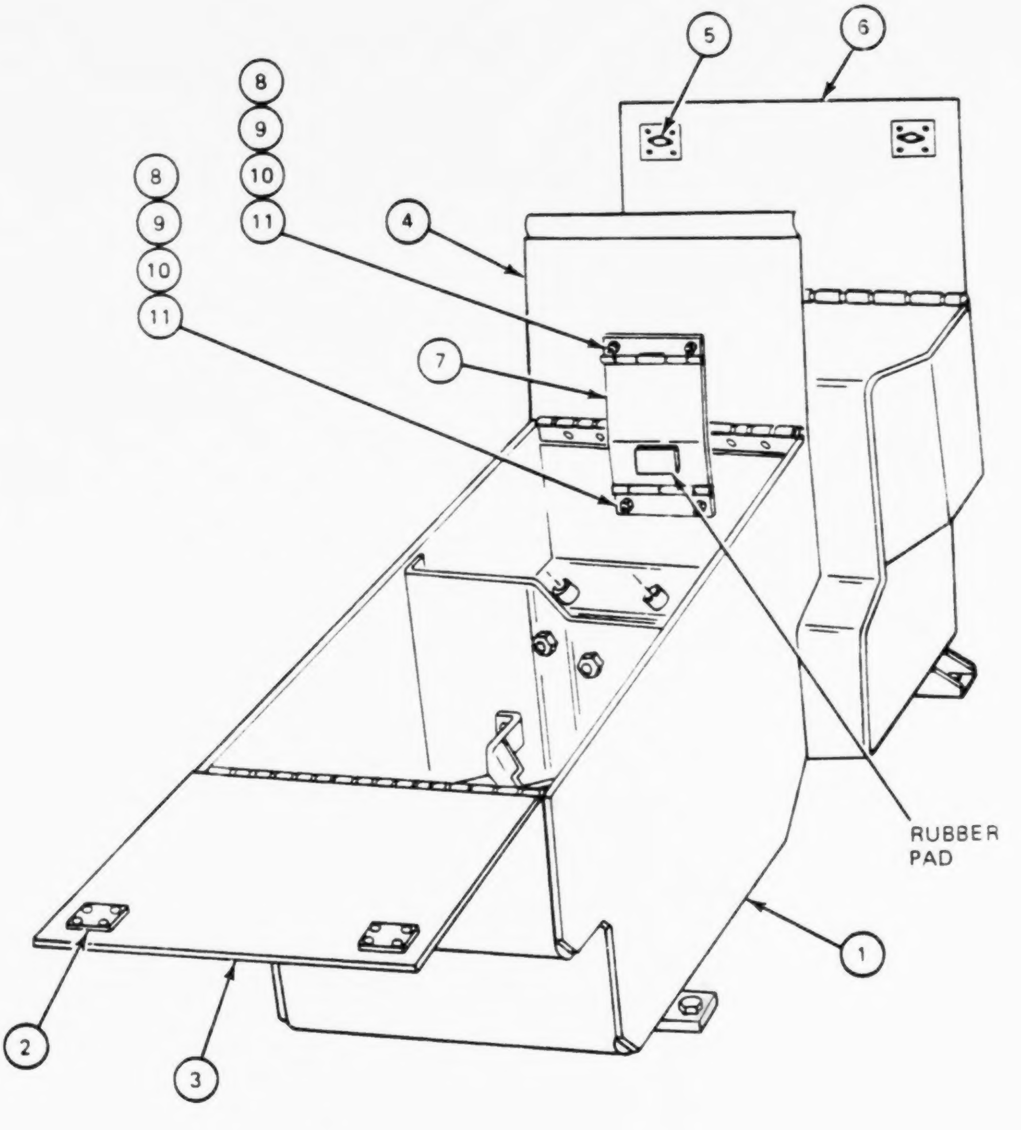
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Periscope Stowage Box | FO-4 | 9 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 19-9. HINGED PLATE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until periscope stowage box (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Open two latches (2) and open door (3). |
| 4. | Open door (4) to get to inside of periscope stowage box (1). |
| 5. | Open two latches (5) and open door (6).<br>**NOTE**<br>Check near location of hinged plate (7) on periscope stowage box (1) and door (4) for number of flat washers (8) that was written down during hinged plate removal (para 19-8). Note that flat washers (8) go under hinged plate and lockwashers (9) go under nuts (10). Check hinged plate (7) for pencil mark made during hinged plate removal (para 19-8). Use this mark to find top of hinged plate so it can be put back in place. |
| 6. | Using screwdriver and wrench, attach hinged plate (7) to periscope stowage box (1) with two screws (11), two lockwashers (9), two nuts (10) and same number of flat washers (8) as removed. |
| 7. | Close door (6). |
| 8. | Using screwdriver and wrench, attach hinged plate (7) to door (4) with two screws (11), two lockwashers (9), two nuts (10) and same number of flat washers (8) as removed. |
| 9. | Close doors (4) and (3). |
| | END OF TASK |


RUBBER PAD

# CHAPTER 20

# DRIVER'S IR M24 PERISCOPE

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20-1. Procedures to remove and install IR M24 periscope are in TM 9-2350-222-10.

# CHAPTER 21

# ODDMENT STOWAGE BOX

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## 21-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| Oddment Stowage Box | 21-2 | 21-3 |

## 21-2. ODDMENT STOWAGE BOX REMOVAL PROCEDURE

APPLICABLE CONFIGURATIONS: M728 with driver's night viewer

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to depress main gun

EQUIPMENT LOCATION INFORMATION:

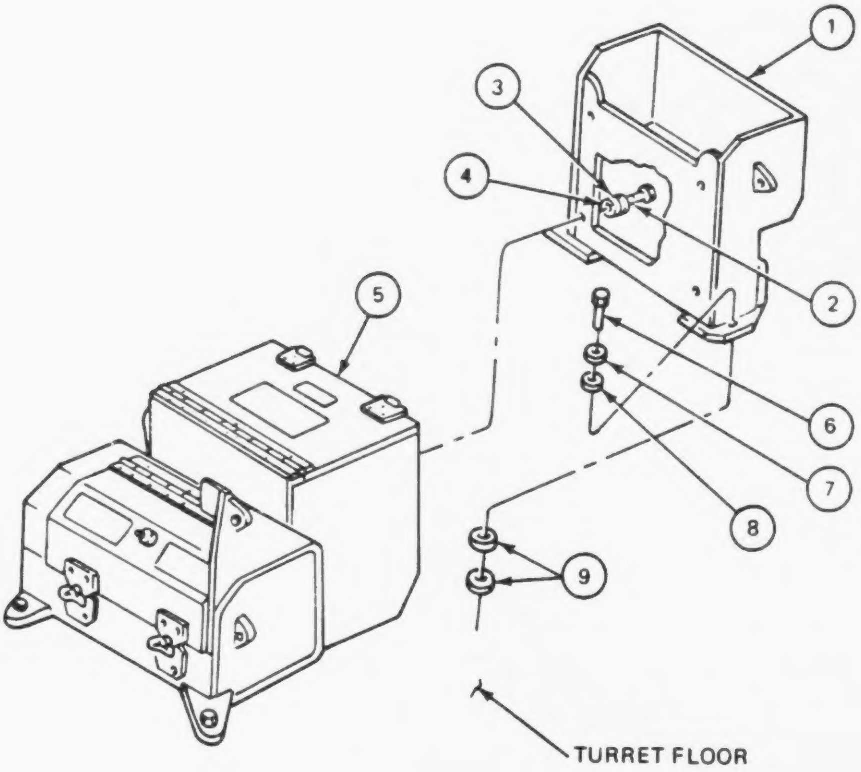
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
All loose equipment removed from oddment stowage box
Turret traverse lock set to LOCKED

## 21-2. ODDMENT STOWAGE BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Depress main gun as far as possible (TM-10). |
| 2. | Using wrench, reach inside oddment stowage box (1) and remove four screws (2), four lockwashers (3), and four flat washers (4) that attach oddment stowage box to rations box (5). |
| 3. | Using wrench, remove two screws (6), two lockwashers (7), and two flat washers (8) that attach oddment stowage box (1) to turret floor. |
| 4. | Remove oddment stowage box (1). |
| 5. | Remove shims (9) (if present) from turret floor. |
| | END OF TASK |



## 21-3. ODDMENT STOWAGE BOX INSTALLATION PROCEDURE

APPLICABLE CONFIGURATIONS: M728 with driver's night viewer

TOOLS: 9/16" combination wrench

PERSONNEL: One

REFERENCES: TM 9-3250-222-10 for procedure to depress main gun

EQUIPMENT LOCATION INFORMATION:

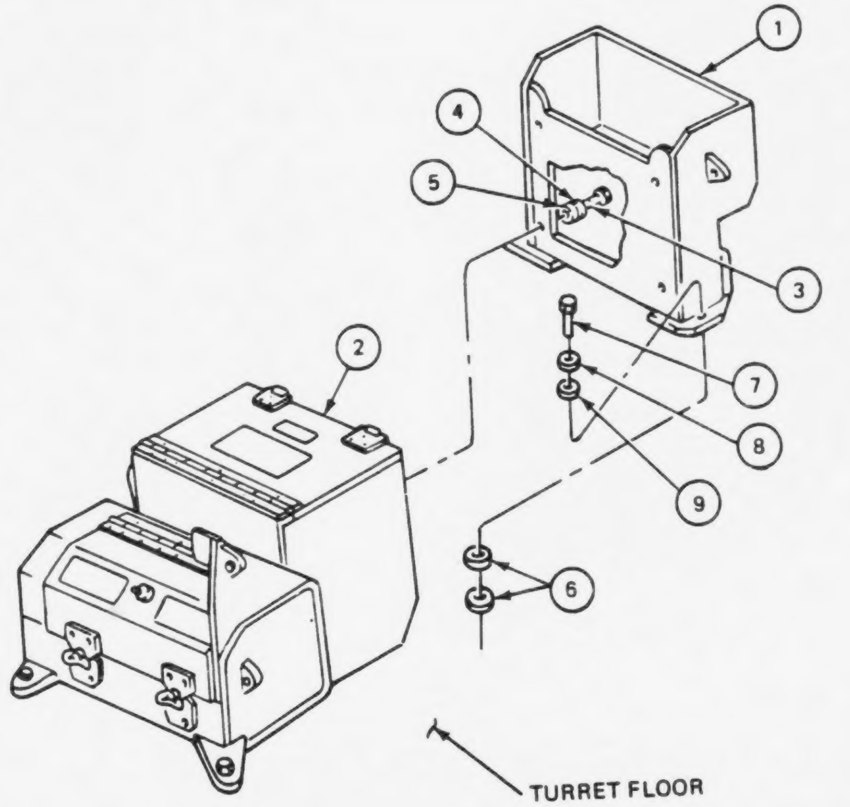
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

## 21-3. ODDMENT STOWAGE BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Depress main gun as far as possible (TM-10). |
| 2. | Place oddment stowage box (1) on turret floor and against rations box (2). |
| 3. | Using hands, reach inside oddment stowage box (1) and loosely attach oddment stowage box to rations box (2) with four screws (3), four lockwashers (4), and four flat washers (5). |
| 4. | Check and put shims (6) (two maximum), as required under each leg of oddment stowage box (1) to level with turret floor. |
| 5. | Using wrench, attach oddment stowage box (1) to turret floor with two screws (7), two lockwashers (8), and two flat washers (9). |
| 6. | Using wrench, tighten four screws (3) from step 3. |
|  | END OF TASK |

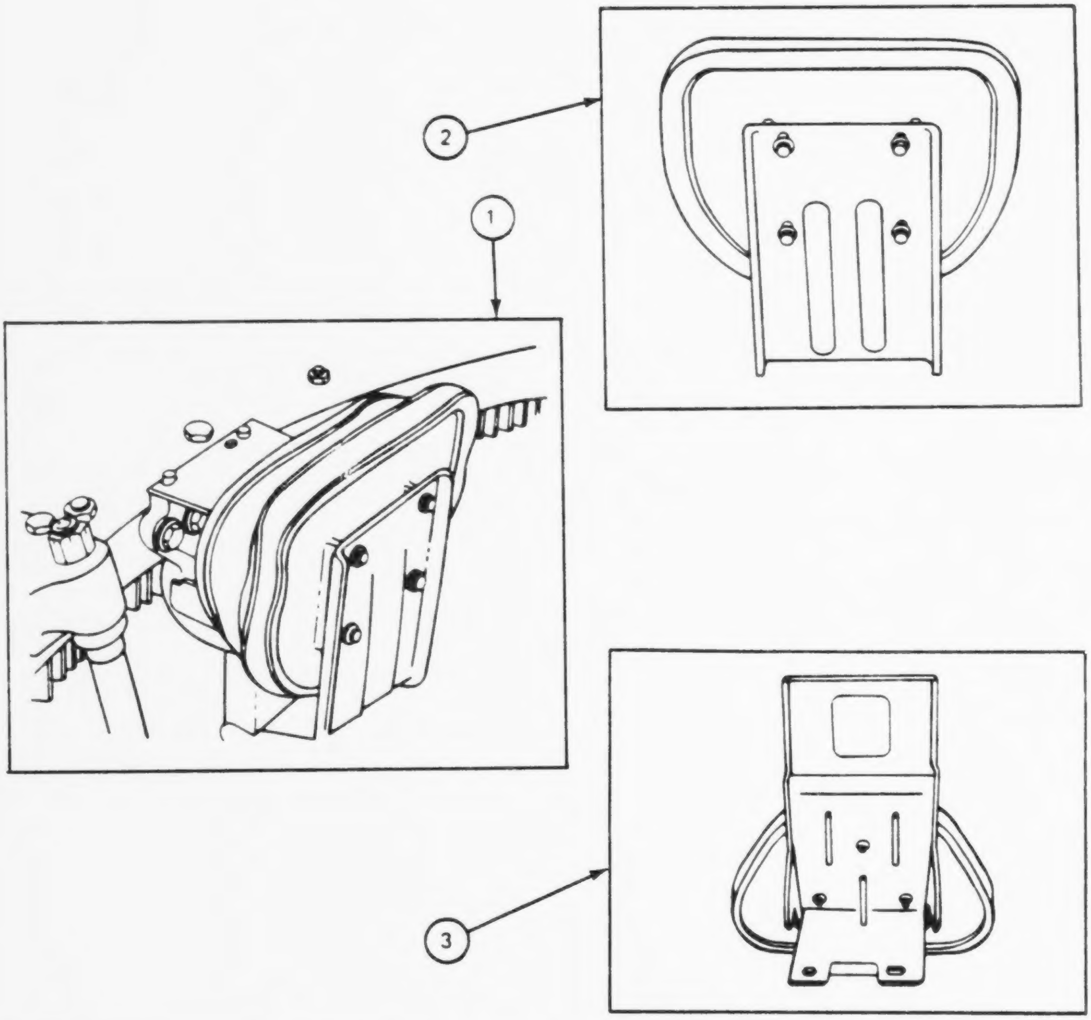


# CHAPTER 22

# LOADER'S SEAT

## 22-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | |
|---|---|---|---|---|
| Equipment Item | Removal | Installation | Disassembly | Assembly |
| 1. Loader's Seat | 22-2 | 22-3 | 22-4 | 22-5 |
| 2. Seat | . . . | . . . | 22-6 | 22-7 |
| 3. Backrest | . . . | . . . | 22-8 | 22-9 |



## 22-2. LOADER'S SEAT REMOVAL PROCEDURE

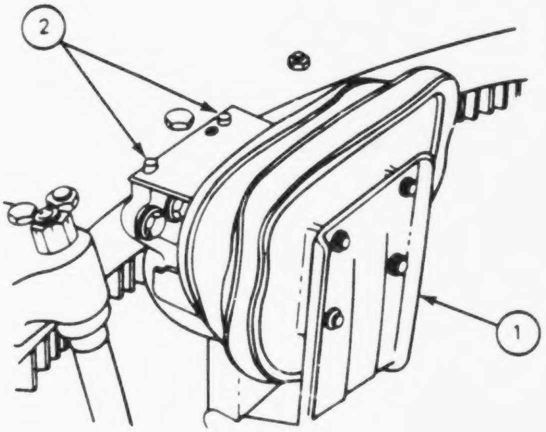
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Loader's Seat | FO-3 | 6 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lift loader's seat (1) off dowel pins (2). Remove loader's seat.<br>END OF TASK |



## 22-3. LOADER'S SEAT INSTALLATION PROCEDURE

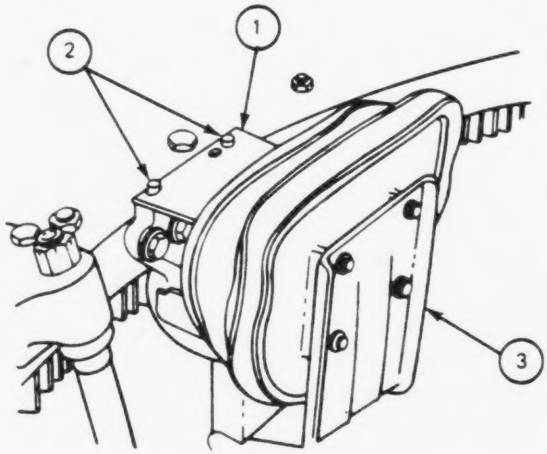
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Loader's Seat | FO-3 | 6 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Line up two holes in mounting bracket (1) with two dowel pins (2). Slide loader's seat (3) down over two dowel pins.<br>END OF TASK |



## 22-4. LOADER'S SEAT DISASSEMBLY PROCEDURE

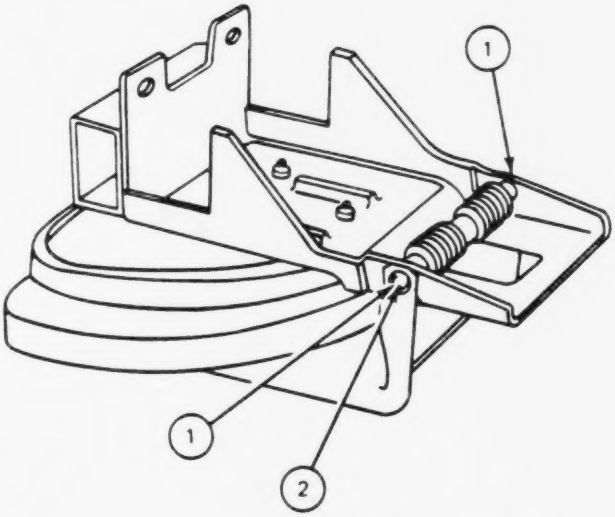
TOOLS: Round nose pliers
Hammer
3/8" drift pin punch

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove loader's seat (para 22-2)

**FRAME 1**

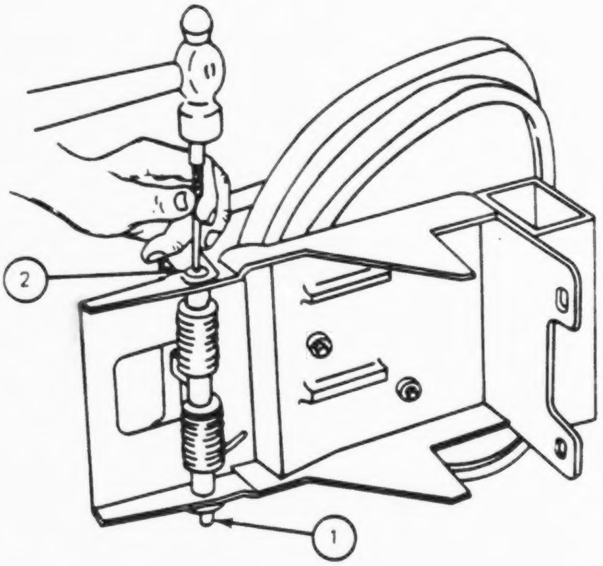
| Step | Procedure |
|---|---|
| 1. | Using pliers, remove two seat adjusting washers (1) from pin (2). Throw away two seat adjusting washers.<br>GO TO FRAME 2 |



## 22-4. LOADER'S SEAT DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

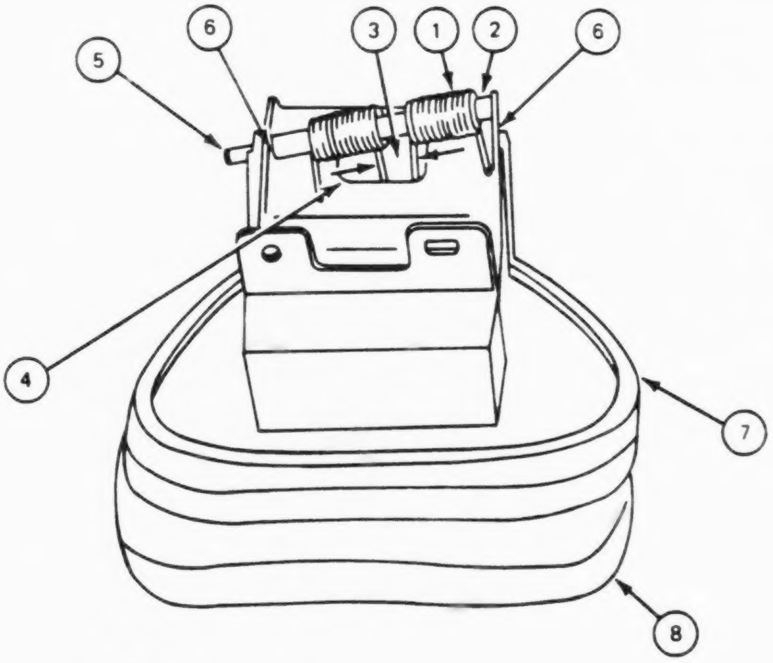
| Step | Procedure |
|---|---|
| | **WARNING**<br>Keep fingers away from spring when doing this task. Spring is very strong. It can snap forward hard enough to hurt you. |
| 1. | Using hammer and punch, tap pin (1) part way out of hole in support bracket (2). |
| | GO TO FRAME 3 |



## 22-4. LOADER'S SEAT DISASSEMBLY PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| | **WARNING**<br>Keep fingers away from spring when doing this task. Spring is very strong. It can snap forward hard enough to hurt you. |
| 1. | Using pliers, carefully pull back spring (1) and spring support (2) until U-shaped part of spring (3) clears back of seat support plate (4). |
| 2. | Using pliers, remove pin (5) and two flat washers (6) from spring support (2). |
| 3. | Remove spring (1) with spring support (2) from seat support plate (4). |
| 4. | Remove backrest (7) from seat (8). |
| | END OF TASK |



## 22-5. LOADER'S SEAT ASSEMBLY PROCEDURE

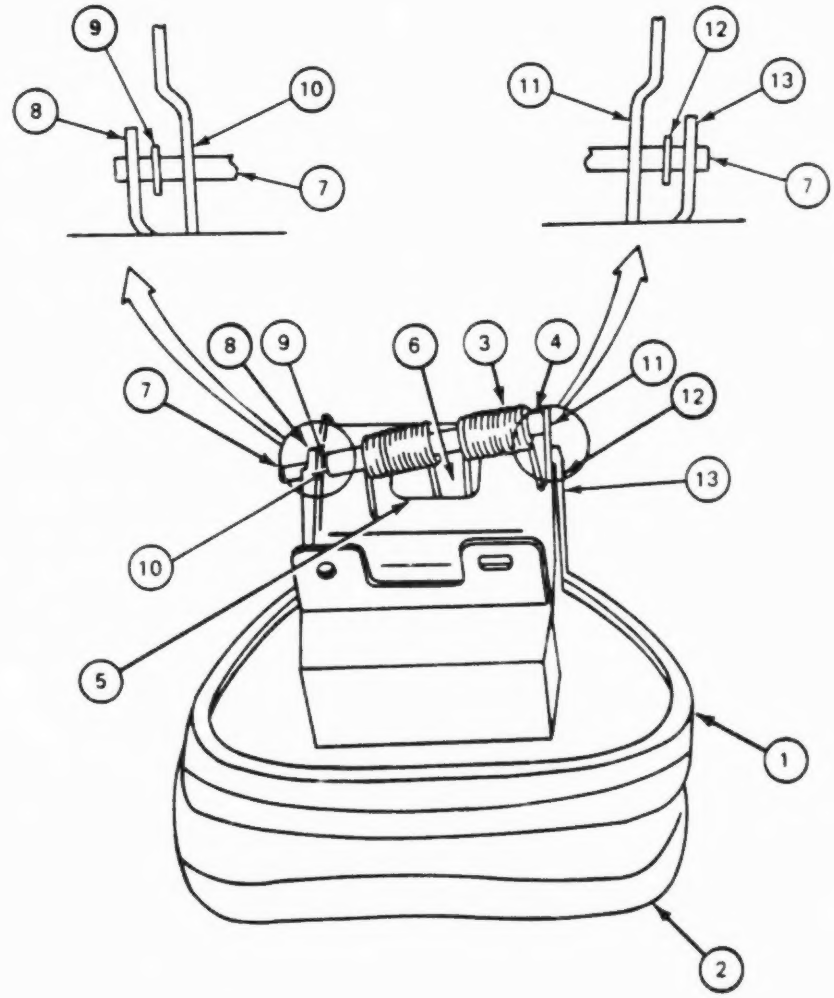
TOOLS: Round nose pliers
Hammer
3/8 drift pin punch

SUPPLIES: New seat adjusting washers (two)

PERSONNEL: One

**FRAME 1**

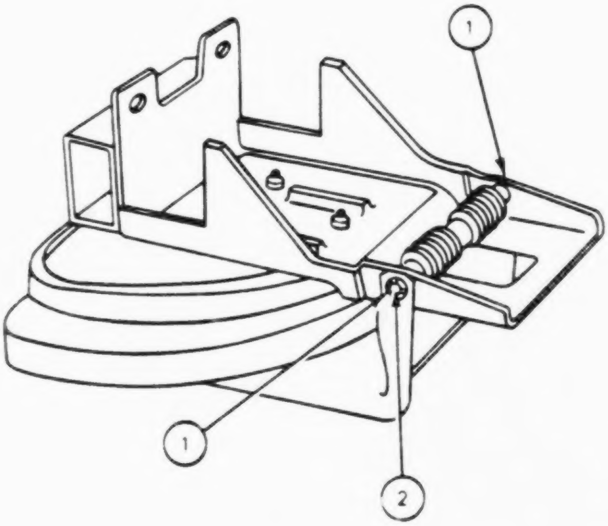
| Step | Procedure |
|---|---|
| 1. | Put backrest (1) on seat (2).<br>**WARNING**<br>Be careful not to let go of spring when doing this task. Spring is very strong. If suddenly let go, it can snap forward hard enough to hurt you. |
| 2. | Put spring (3) and spring support (4) on seat support plate (5). Put U-shaped (6) part of spring (3) against back of seat support plate. |
| 3. | Put pin (7) through bracket (8), washer (9), and mounting plate (10) and into spring support (4). |
| 4. | Press down on spring (3). Line up spring support (4) with mounting plate (11), washer (12) and bracket (13). |
| 5. | Using hammer and punch, tap pin (7) through mounting plate (11), washer (12), and bracket (13).<br>GO TO FRAME 2 |



## 22-5. LOADER'S SEAT ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using pliers, put two seat adjusting washers (1) in slots in pin (2).<br>END OF TASK |



## 22-6. SEAT DISASSEMBLY PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
Putty knife
Long round nose pliers

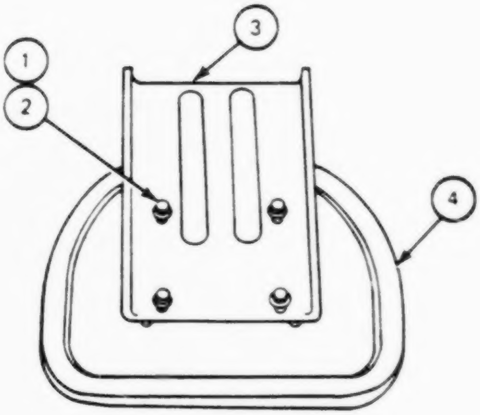
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pins

PRELIMINARY PROCEDURES: Disassemble loader's seat (para 22-4)

**FRAME 1**

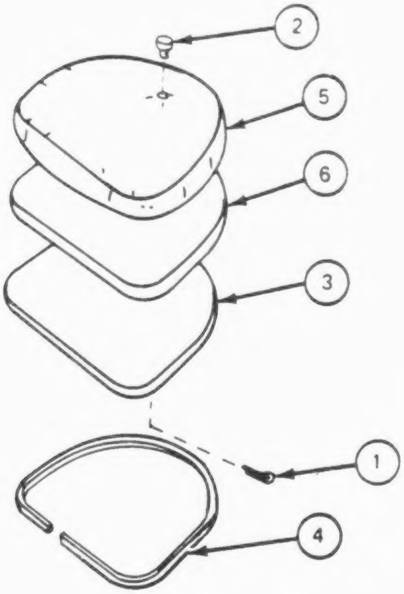
| Step | Procedure |
|---|---|
| 1. | Using socket wrench, remove four screws (1), four flat washers (2), and support plate (3) from seat (4).<br>GO TO FRAME 2 |



## 22-6. SEAT DISASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Using pliers, remove cotter pin (1) from retaining sleeve (2) (JPG). |
| 2. | Remove retaining sleeve (2) from seat frame (3). |
| 3. | Remove rubber (4) from rim of seat frame (3). |
| 4. | Remove seat cover (5) from seat pad (6).<br>**NOTE**<br>Seat pad is glued to seat frame. |
| 5. | Using putty knife, remove seat pad (6) from seat frame (3).<br>END OF TASK |



**Para 22-6 Cont**

## 22-7. SEAT ASSEMBLY PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
Long round nose pliers

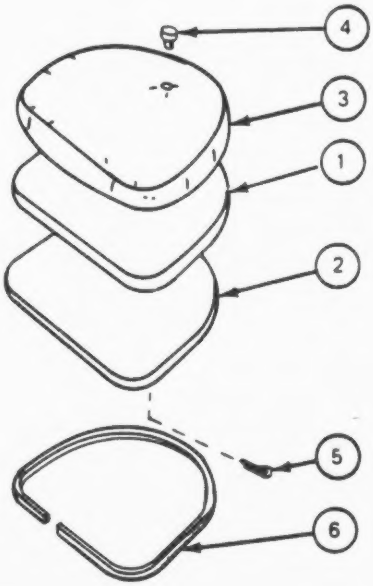
SUPPLIES: Adhesive (item 4, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to:
Install cotter pins
Use adhesives

**FRAME 1**

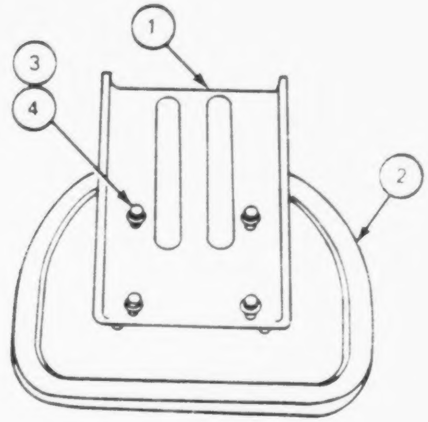
| Step | Procedure |
|---|---|
| 1. | Using adhesive, attach seat pad (1) to top of seat frame (2) (JPG). |
| 2. | Put seat cover (3) on seat pad (1). |
| 3. | Put retaining sleeve (4) through seat cover (3), seat pad (1), and seat frame (2). |
| 4. | Using pliers, install cotter pin (5) in retaining sleeve (4) (JPG). |
| 5. | Put rubber (6) on rim of seat frame (2). |
|  | GO TO FRAME 2 |



## 22-7. SEAT ASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, attach seat support plate (1) to seat (2) with four flat washers (3) and four screws (4).<br>END OF TASK |



## 22-8. BACKREST DISASSEMBLY PROCEDURE

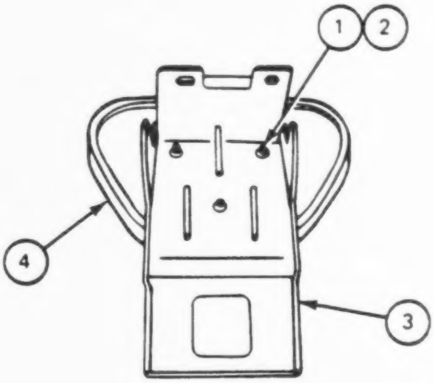
TOOLS: 1/2" socket (3/8" drive)
3/8" drive ratchet
5" extension (3/8" drive)
Putty knife

PERSONNEL: One

PRELIMINARY PROCEDURES: Disassemble loader's seat (para 22-4)

**FRAME 1**

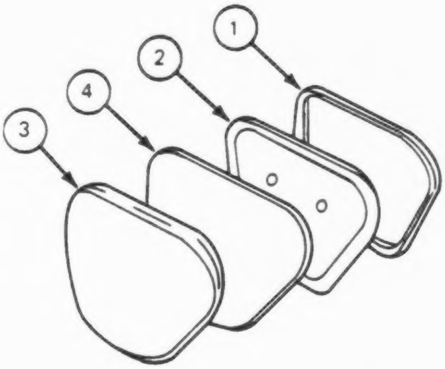
| Step | Procedure |
|---|---|
| 1. | Using socket wrench and extension, remove three nuts (1), three lockwashers (2), and mounting bracket (3) from backrest (4).<br>GO TO FRAME 2 |



## 22-8. BACKREST DISASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Remove rubber (1) from rim of backrest frame (2). |
| 2. | Remove backrest cover (3) from backrest pad (4). |
| | **NOTE** |
| | Backrest pad is glued to backrest frame. |
| 3. | Using putty knife, remove backrest pad (4) from backrest frame (2). |
| | END OF TASK |



## 22-9. BACKREST ASSEMBLY PROCEDURE

TOOLS: 1/2" socket (3/8" drive)
3/8" drive ratchet
5" extension (3/8" drive)

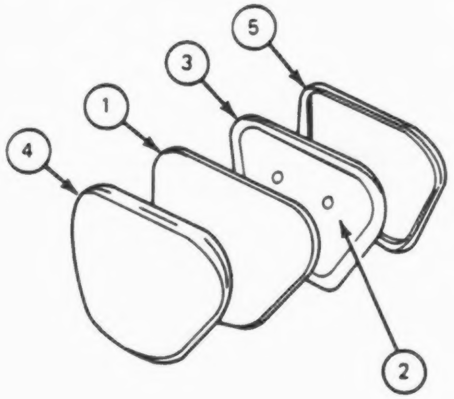
SUPPLIES: Adhesive (item 4, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to put on adhesives

**FRAME 1**

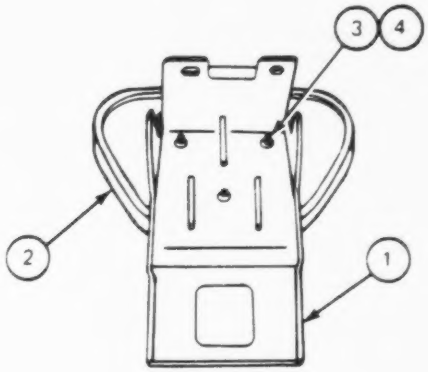
| Step | Procedure |
|---|---|
| 1. | Using adhesive, attach backrest pad (1) to front (2) of backrest frame (3) (JPG). |
| 2. | Put cover (4) on backrest pad (1). |
| 3. | Put rubber (5) on rim of backrest frame (3). |
|  | GO TO FRAME 2 |



## 22-9. BACKREST ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench and extension, attach mounting bracket (1) to backrest (2) with three lockwashers (3) and three nuts (4).<br>END OF TASK |

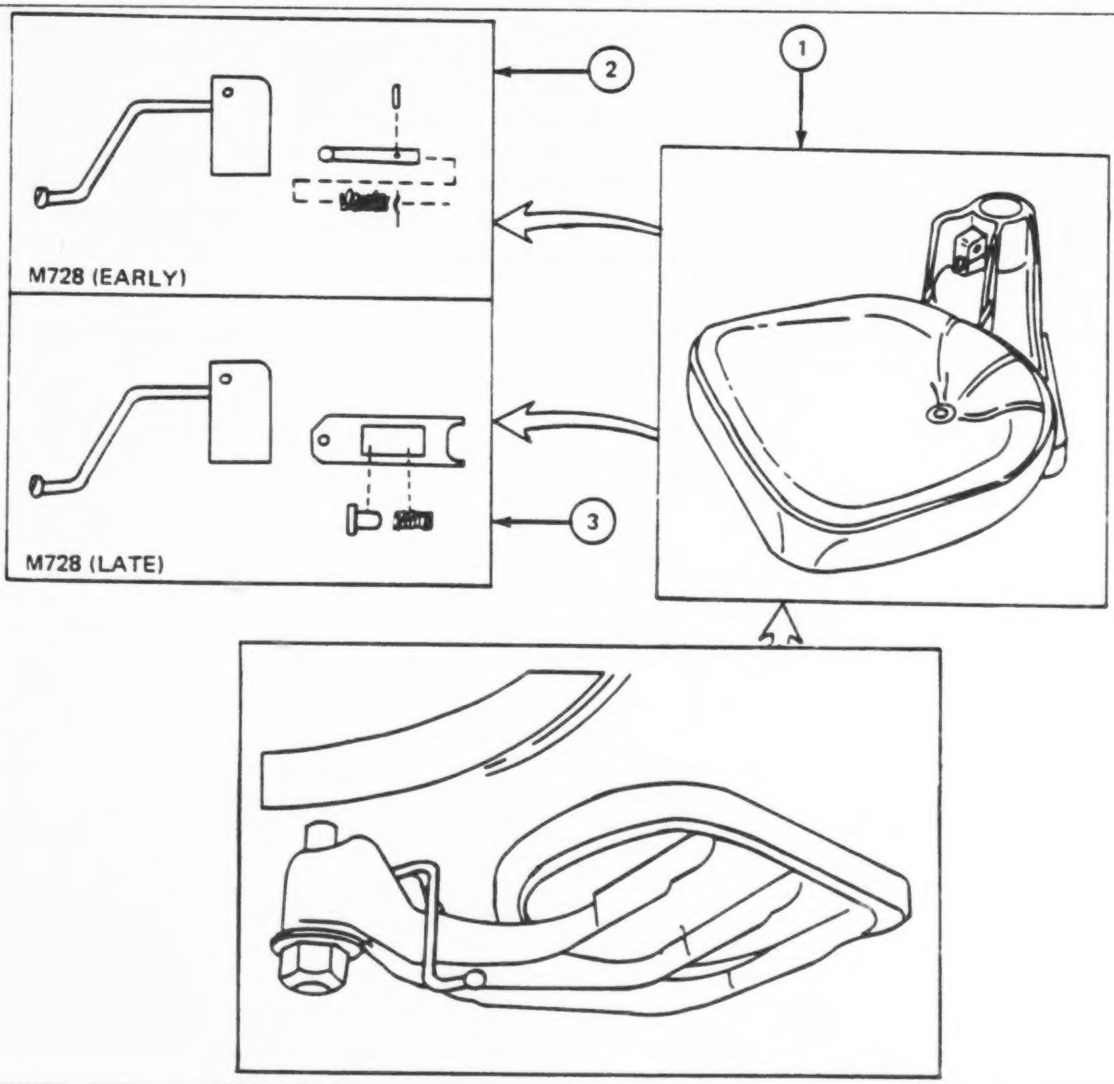


# CHAPTER 23

# COMMANDER'S SWING SEAT

## 23-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | |
|---|---|---|---|---|
| Equipment Item | Removal | Installation | Disassembly | Assembly |
| 1. Seat | 23-2 | 23-3 | 23-4 | 23-5 |
| 2. Handle (Early M728) | . . . | . . . | 23-6 | 23-7 |
| 3. Handle (Late M728) | . . . | . . . | 23-8 | 23-9 |



## 23-2. SEAT REMOVAL PROCEDURE

TOOLS: 18" adjustable wrench

PERSONNEL: One

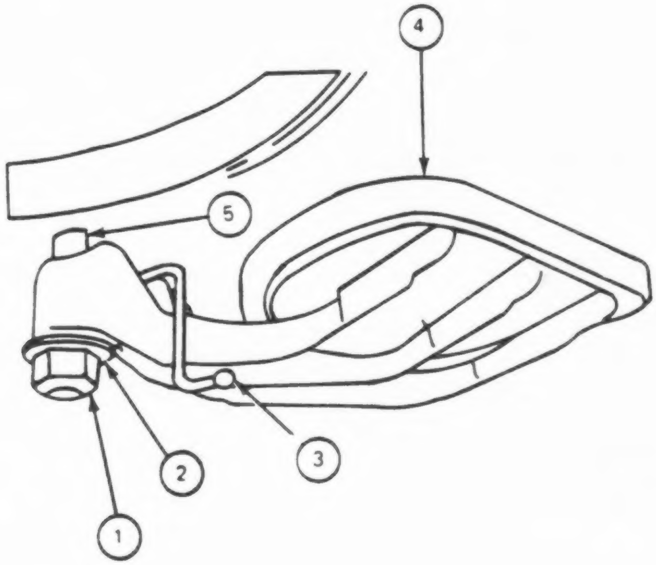
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Commander's Swing Seat | FO-2 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, remove nut (1), and two flat washers (2). |
| 2. | Lift handle (3) up and remove seat (4) from pedestal (5). |
| | END OF TASK |



## 23-3. SEAT INSTALLATION PROCEDURE

TOOLS: 18" adjustable wrench

PERSONNEL: One

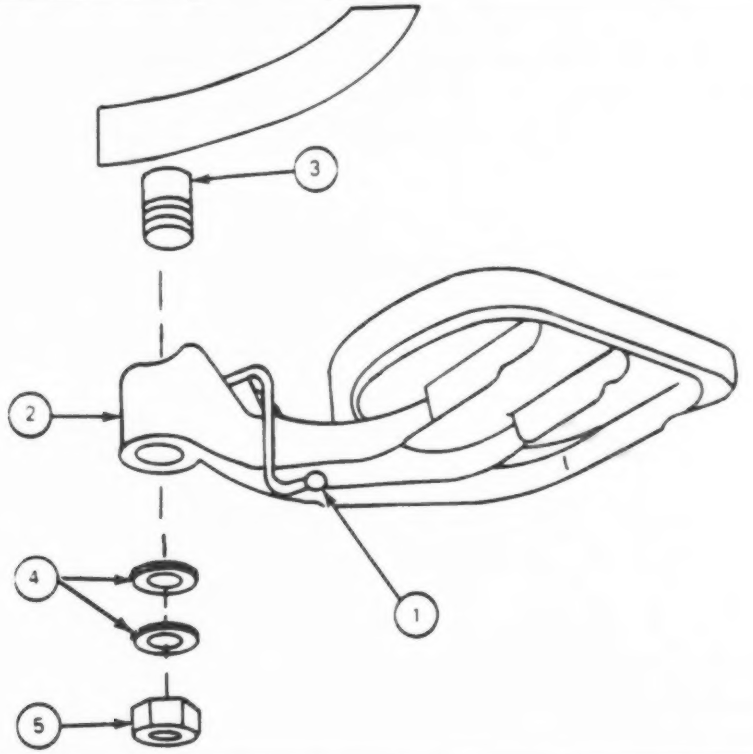
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Commander's Swing Seat | FO-2 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lift seat handle (1) up and put seat (2) on pedestal (3). |
| 2. | Using wrench, put two flat washers (4), and nut (5) on pedestal (3). |
|  | END OF TASK |



## 23-4. SEAT DISASSEMBLY PROCEDURE

TOOLS: Putty knife
Slip joint pliers

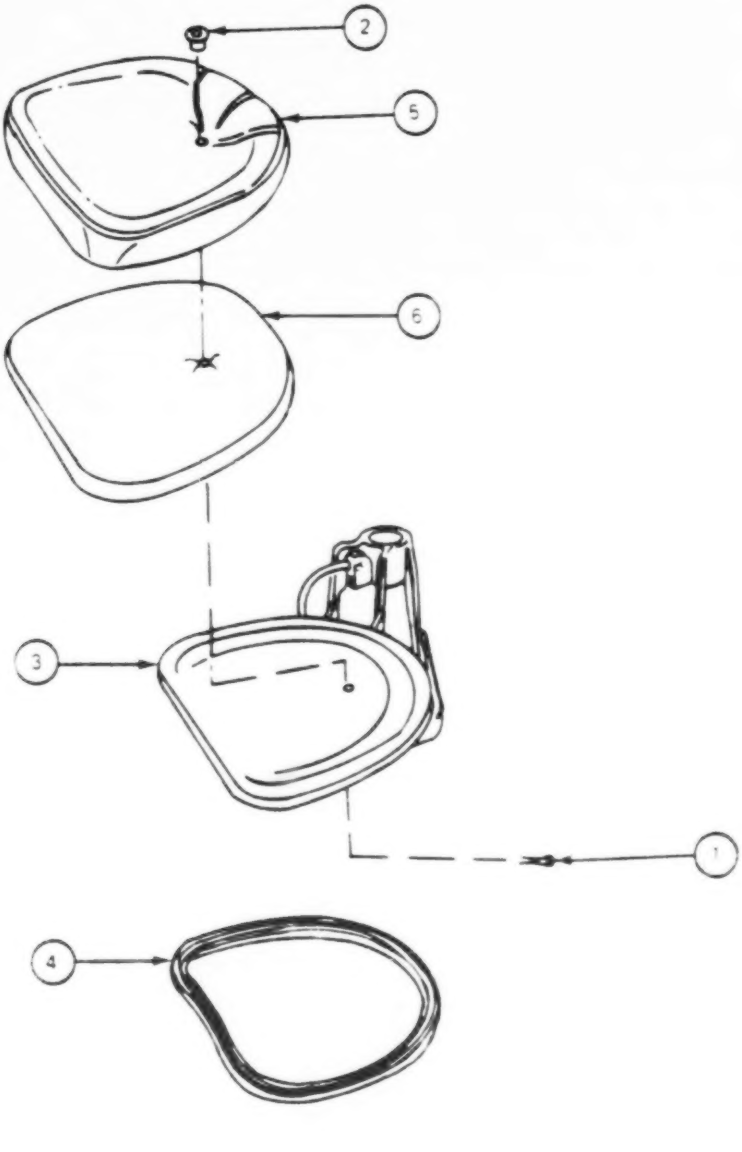
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pins

PRELIMINARY PROCEDURES: Remove seat (para 23-2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using pliers, remove cotter pin (1) from retainer (2) (JPG). |
| 2. | Remove retainer (2) from seat (3). |
| 3. | Remove rubber (4) from edges of seat (3). |
| 4. | Remove seat cover (5) from seat pad (6).<br>**NOTE**<br>Seat pad is glued to seat. |
| 5. | Using putty knife, remove seat pad (6) from seat (3).<br>END OF TASK |



Para 23-4 Cont

## 23-5. SEAT ASSEMBLY PROCEDURE

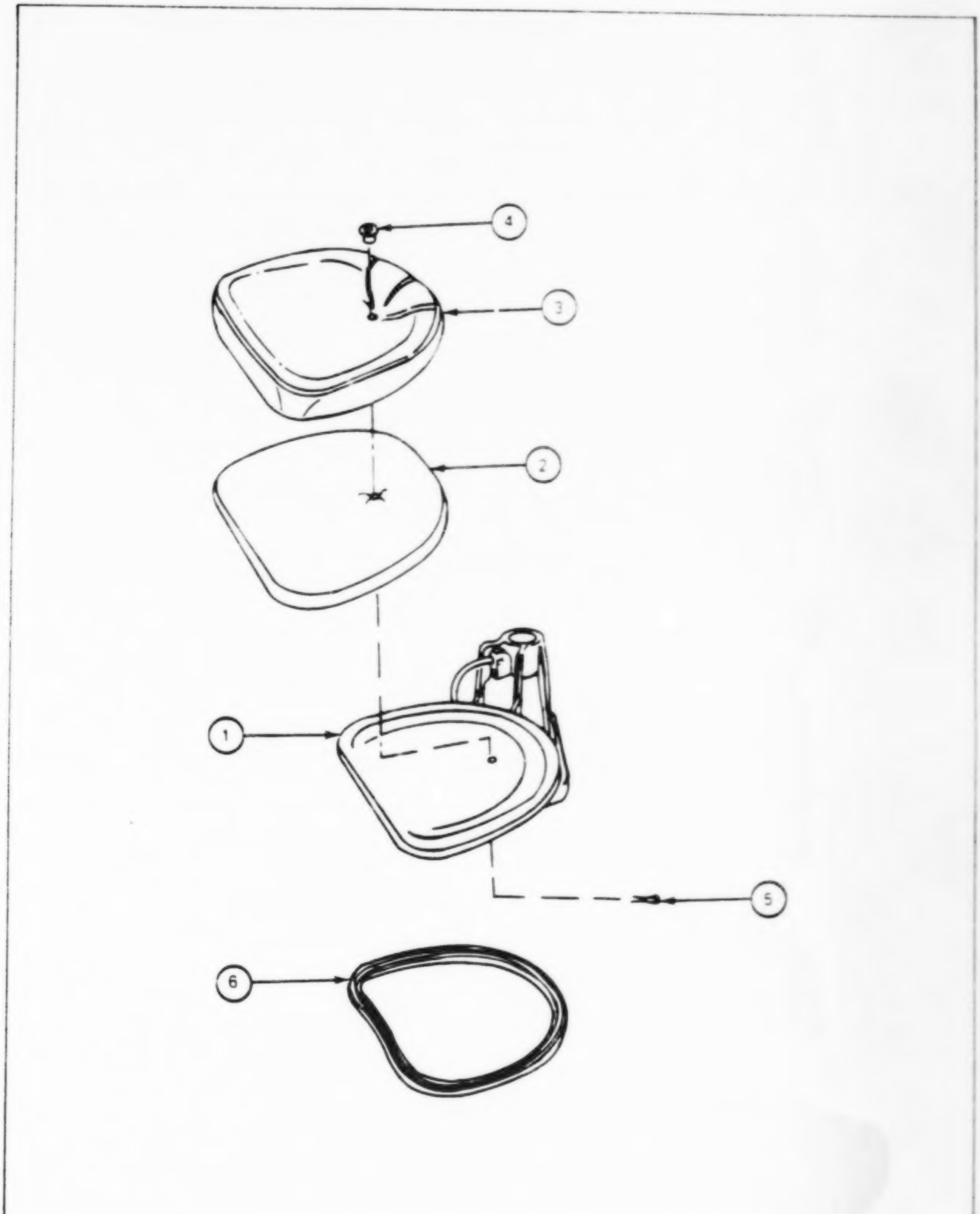
SUPPLIES: Adhesive (item 4, App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to:
Install cotter pins
Apply adhesive

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put adhesive on surface of seat (1) (JPG). |
| 2. | Put seat pad (2) on seat (1). |
| 3. | Put seat cover (3) on seat pad (2). |
| 4. | Put retainer (4) through seat cover (3), seat pad (2) and seat (1). |
| 5. | Put cotter pin (5) through retainer (4) (JPG). |
| 6. | Put rubber (6) on edges of seat (1). |
|  | END OF TASK |



## 23-6. HANDLE (EARLY M728) DISASSEMBLY PROCEDURE

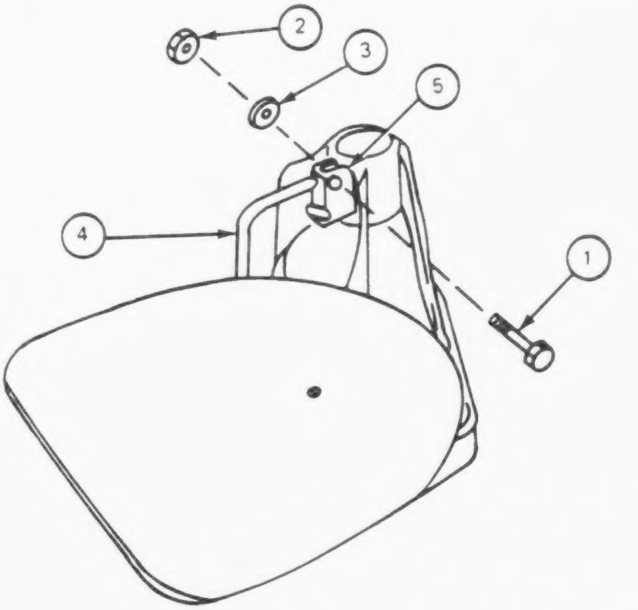
TOOLS: 7/16" combination wrench (two)
Round nose pliers

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove seat (para 23-2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using one wrench on head of screw and other wrench on nut, remove screw (1), nut (2), flat washer (3), and handle (4) from handle bracket (5).<br>GO TO FRAME 2 |



## 23-6. HANDLE (EARLY M728) DISASSEMBLY PROCEDURE (CONT)

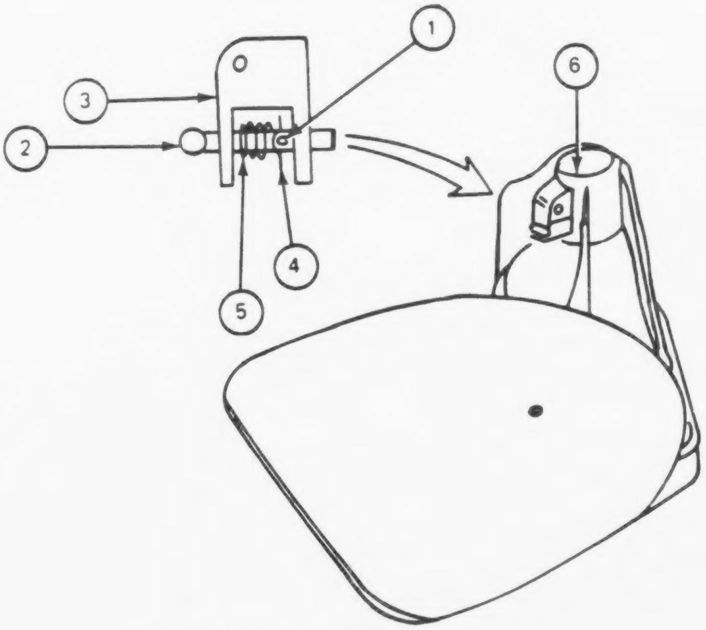
**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using pliers, remove spring pin (1). |
| 2. | Pull locking pin (2) half way out of handle bracket (3). |
| 3. | Remove locking pin retainer (4) and spring (5) from locking pin (2). |
| 4. | Remove locking pin (2) from handle bracket (3). |

**NOTE**

Handle bracket (3) is welded to seat bracket tube (6) and is not removable.

END OF TASK



## 23-7. HANDLE (EARLY M728) ASSEMBLY PROCEDURE

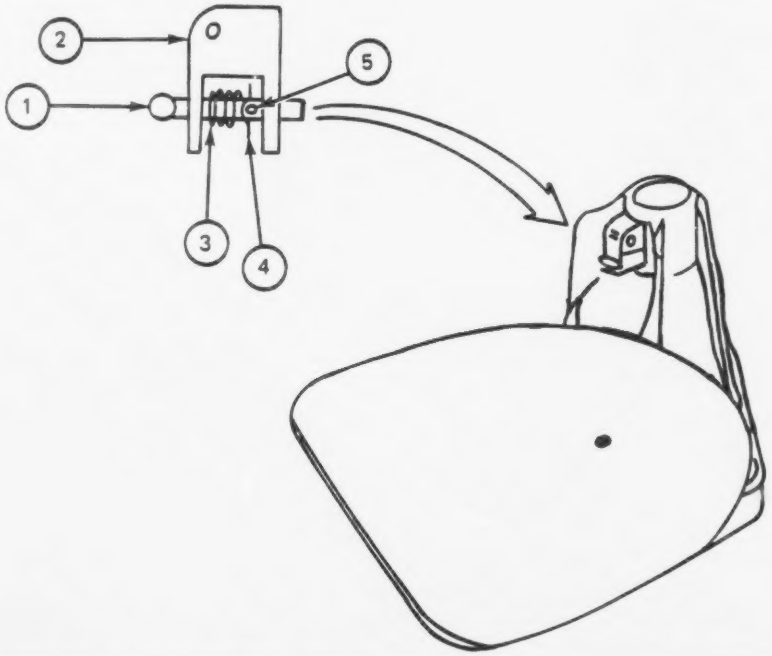
TOOLS: 7/16" combination wrench (two)
Round nose pliers
3/32" drift pin punch
8 oz ball peen hammer

SUPPLIES: New spring pin

PERSONNEL: One

**FRAME 1**

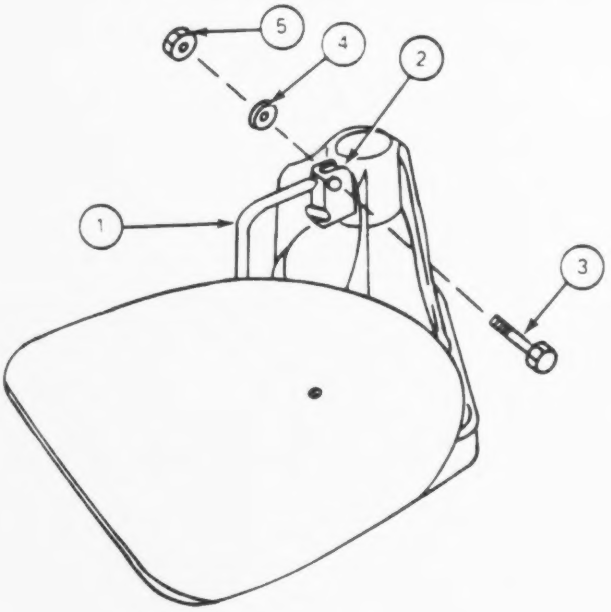
| Step | Procedure |
|---|---|
| 1. | Put locking pin (1) half way into handle bracket (2). |
| 2. | Put spring (3) and locking pin retainer (4) on shaft of locking pin (1). |
| 3. | Push locking pin (1) into handle bracket (2). |
| 4. | Using pliers, put spring pin (5) in locking pin (1). |
| 5. | Using hammer and punch, tap spring pin (5) into locking pin (1). |
| | GO TO FRAME 2 |



## 23-7. HANDLE (EARLY M728) ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using one wrench on head of screw and other wrench on nut, put handle (1) on handle bracket (2) with screw (3), washer (4), and nut (5).<br>END OF TASK |



## 23-8. HANDLE (LATE M728) DISASSEMBLY PROCEDURE

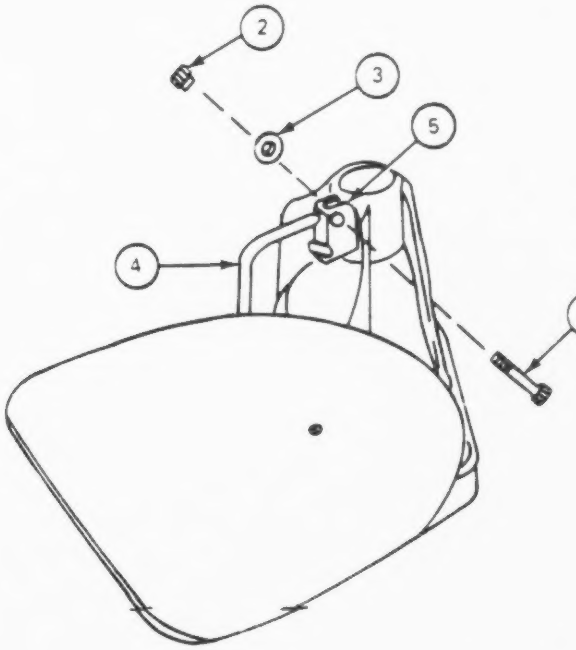
TOOLS: 7/16" combination wrench (two)

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove seat (para 23-2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using one wrench on head of screw and other wrench on nut, remove screw (1), nut (2), flat washer (3), and handle (4) from bracket (5).<br>GO TO FRAME 2 |



## 23-8. HANDLE (LATE M728) DISASSEMBLY PROCEDURE (CONT)

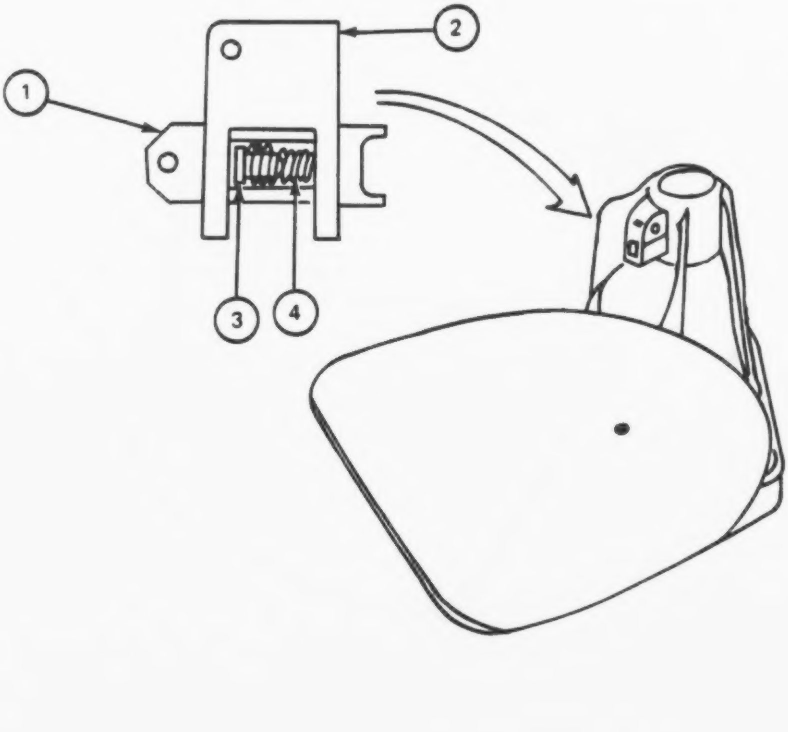
**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Remove spring (1). |
| 2. | Remove spring guide (2). |
| 3. | Remove wedge pin (3) from handle bracket (4). |

**NOTE**

Handle bracket (4) is welded to seat bracket tube (5) and is not removable.

END OF TASK



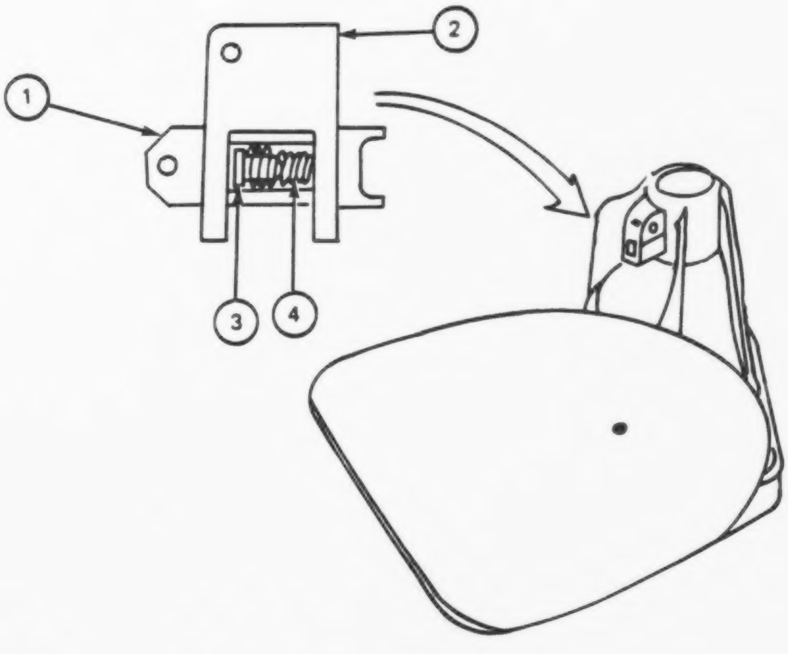
## 23-9. HANDLE (LATE M728) ASSEMBLY PROCEDURE

TOOLS: 7/16" combination wrench (two)

PERSONNEL: One

**FRAME 1**

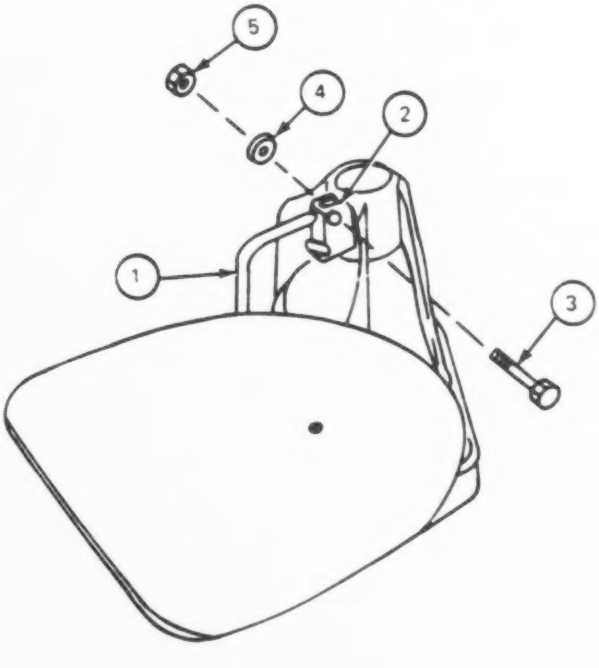
| Step | Procedure |
|---|---|
| 1. | Put wedge pin (1) in handle bracket (2). |
| 2. | Put spring (4) on spring guide (3). |
| 3. | Put spring guide (3) in wedge pin (1). |
|  | GO TO FRAME 2 |



## 23-9. HANDLE (LATE M728) ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using one wrench on head of screw and other wrench on nut, put handle (1) on bracket (2) with screw (3), washer (4), and nut (5).<br>END OF TASK |

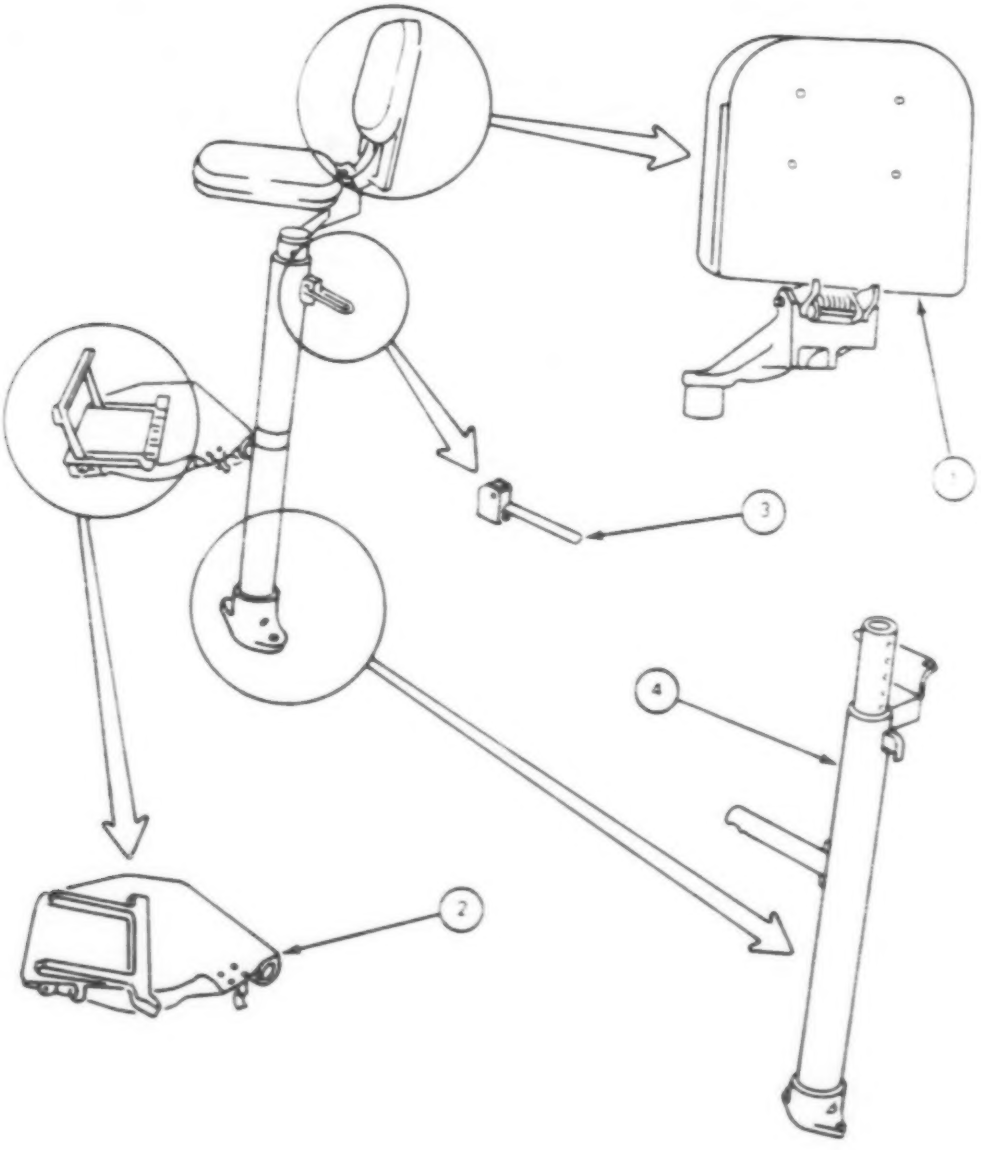


# CHAPTER 24

# COMMANDER'S SEAT

## 24-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation | <br>Disassembly | <br>Assembly |
|---|---|---|---|---|
| 1. Seat and Backrest | 24-2 | 24-3 | 24-4 | 24-5 |
| Seat | . . . | . . . | 24-6 | 24-7 |
| Backrest | . . . | . . . | 24-8 | 24-9 |
| 2. Platform and Footrest | 24-10 | 24-11 | 24-12 | 24-13 |
| 3. Elevation Adjust Handle | . . . | . . . | 24-14 | 24-15 |
| 4. Support Tube | 24-16 | 24-17 | 24-18 | 24-19 |



## 24-2. SEAT AND BACKREST REMOVAL PROCEDURE

TOOLS: 9/16" combination wrench

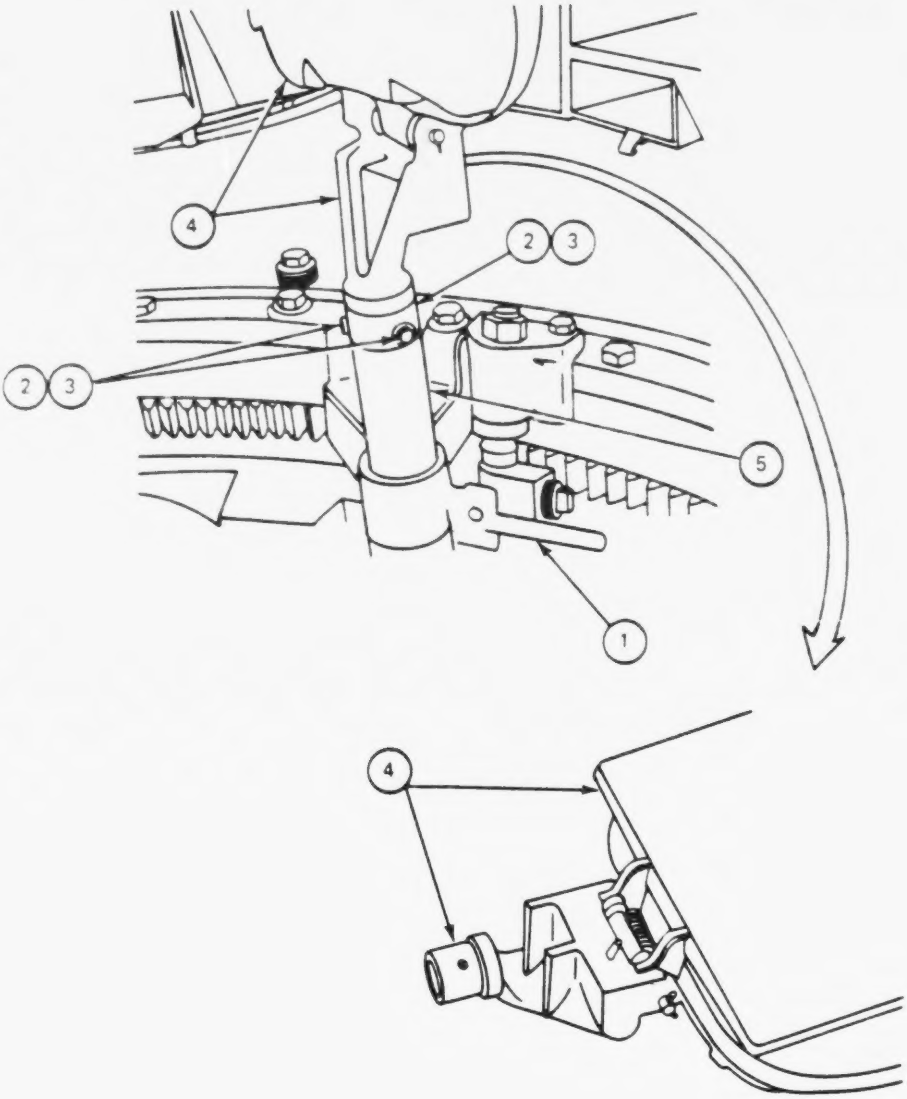
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |

**FRAME 1**

| Step | Procedure |
|---|---|
| | **WARNING**<br>The commander's seat is spring loaded and may injure you if spring pressure is not released slowly. |
| 1 | Sit on commander's seat and hold it down with your weight. |
| 2. | While sitting in seat, pull elevation adjust handle (1) up and let seat raise to full height while gradually lifting weight of your body off seat. |
| 3. | Using wrench, remove three screws (2) and three lockwashers (3). |
| 4. | Remove seat, backrest and bracket (4) from support assembly (5). |
| | END OF TASK |



Para 24-2 Cont

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## 24-3. SEAT AND BACKREST INSTALLATION PROCEDURE

TOOLS: 9/16" combination wrench

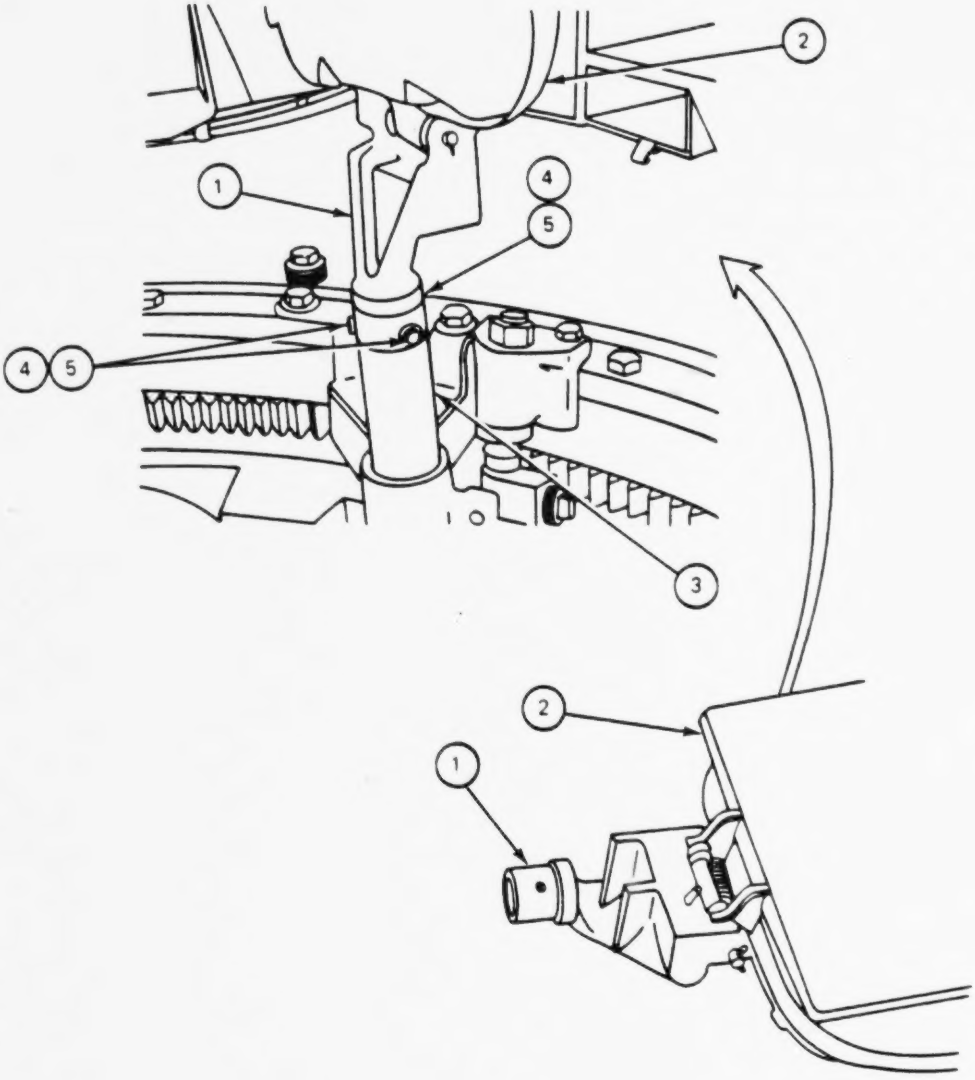
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put support bracket (1) of seat and backrest (2) into top of seat support (3). |
| 2. | Using wrench, attach support bracket (1) to seat support (3) with three screws (4) and three lockwashers (5). |
|  | END OF TASK |



## 24-4. SEAT AND BACKREST DISASSEMBLY PROCEDURE

TOOLS: 9/16 combination wrench
Hammer
3/8" drift pin punch
Needle nose pliers

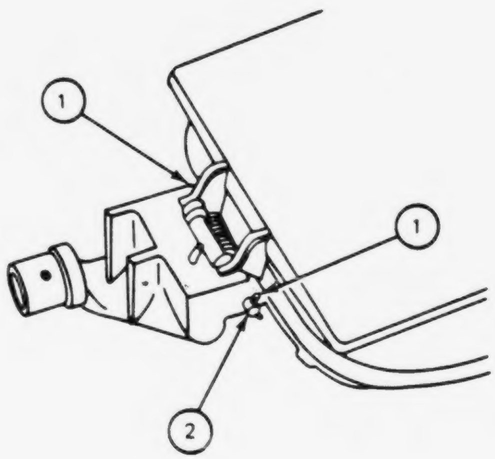
PERSONNEL: One

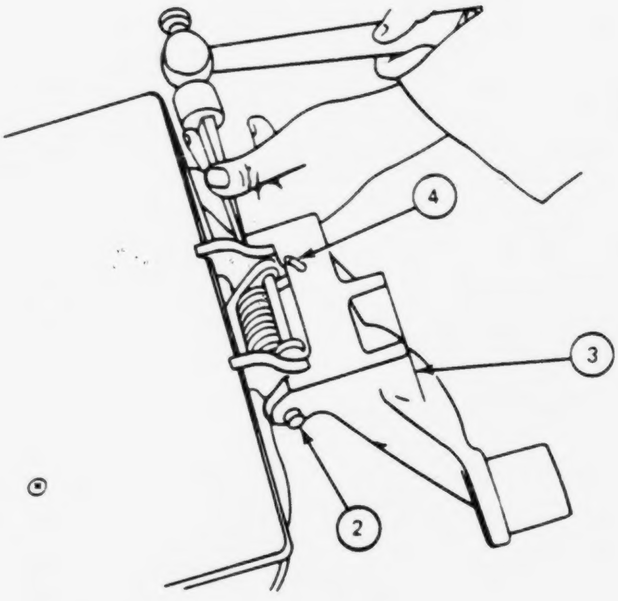
REFERENCES: JPG for procedure to remove cotter pins

PRELIMINARY PROCEDURES: Remove seat and backrest from seat support (para 24-2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Remove two cotter pins (1) from pivot pin (2) (JPG). |
| | **WARNING** |
| | Proceed with caution when doing next step to avoid personal injury. Spring is under 180 inch-pounds of torque. |
| 2. | Using hammer and punch, tap pivot pin (2) through and out of support bracket (3). |
| | **NOTE** |
| | Performing step 3 will separate the seat from the backrest. |
| 3. | Using pliers, unhook spring tang (4) from support bracket (3). |
| | GO TO FRAME 2 |

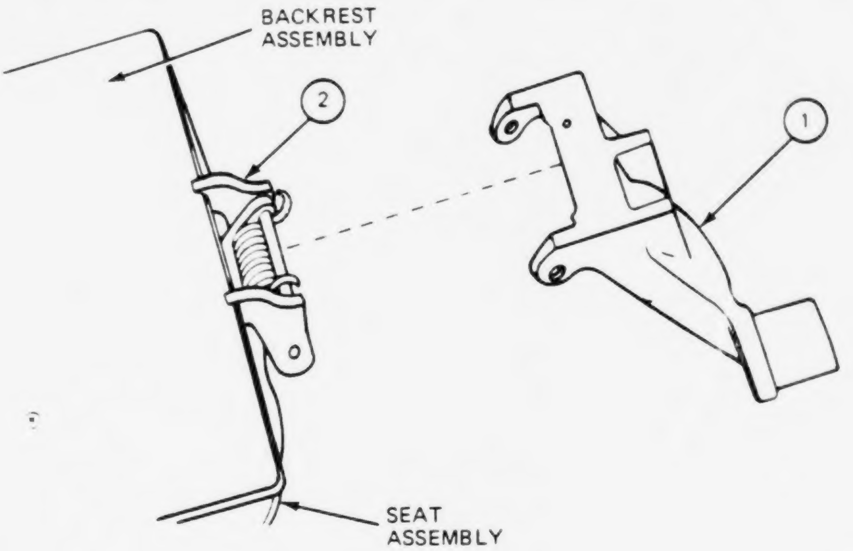


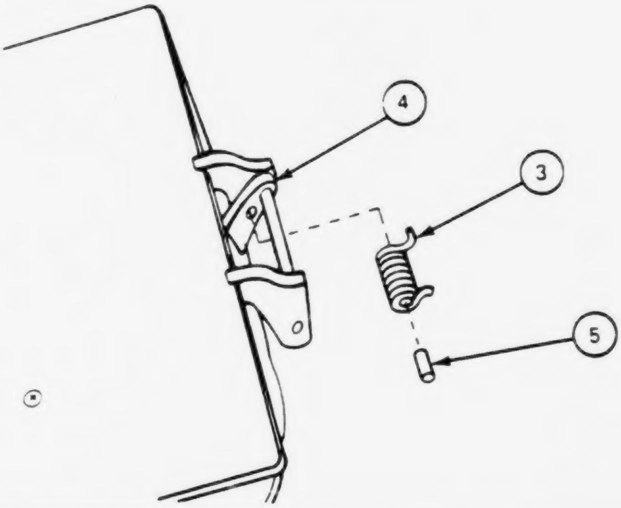


## 24-4. SEAT AND BACKREST DISASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Remove support bracket (1) from backrest bracket (2). |
| 2. | Remove spring (3) from between seat brackets (4). |
| 3. | Remove tube (5) from spring (3). |
| | END OF TASK |


BACKREST ASSEMBLY
2
1
SEAT ASSEMBLY



## 24-5. SEAT AND BACKREST ASSEMBLY PROCEDURE

TOOLS: 9/16" combination wrench
Hammer
3/8" drift pin punch
Needle nose pliers

SUPPLIES: Cotter pins (two)

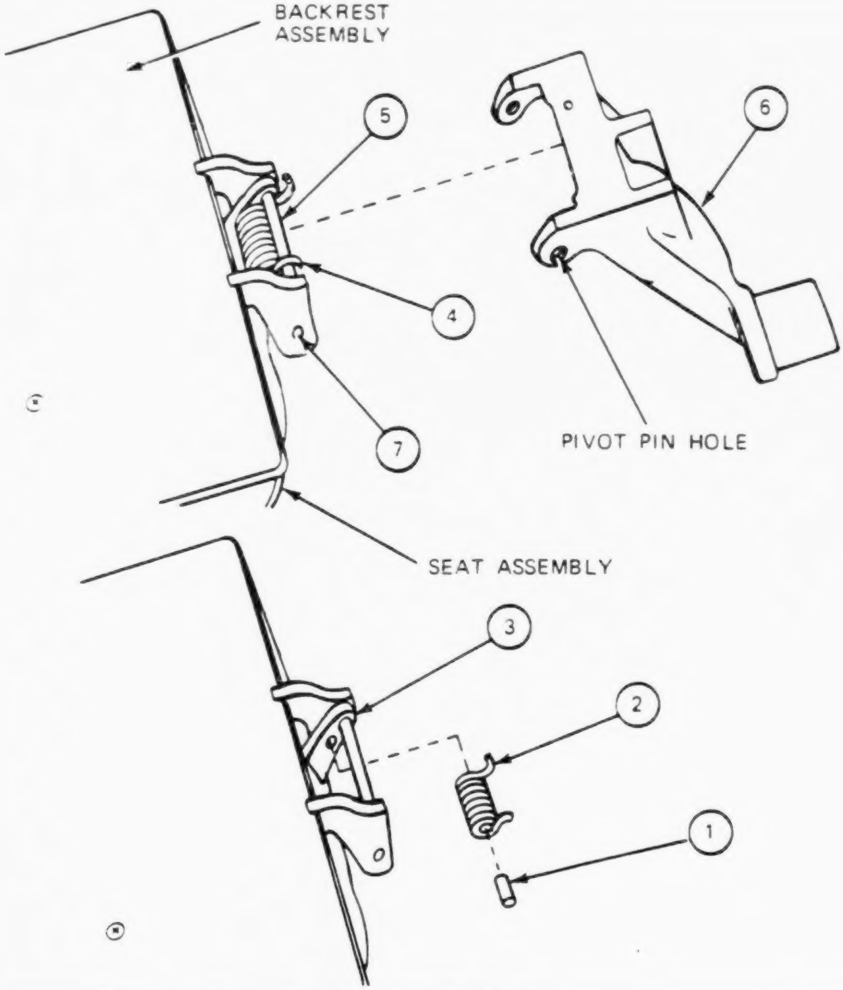
PERSONNEL: Two

REFERENCES: JPG for procedure to install cotter pins

## 24-5. SEAT AND BACKREST ASSEMBLY PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place backrest on top of seat as shown. |
| 2. | Put sleeve (1) inside spring (2). |
| 3. | Put spring (2) with sleeve (1) between two seat support brackets (3). |
| 4. | Place small hook (4) of spring (2) over steel pin (5). |
| 5. | Place support bracket (6) pivot pin holes in line with pivot pin holes (7) of backrest assembly. |
|  | GO TO FRAME 2 |

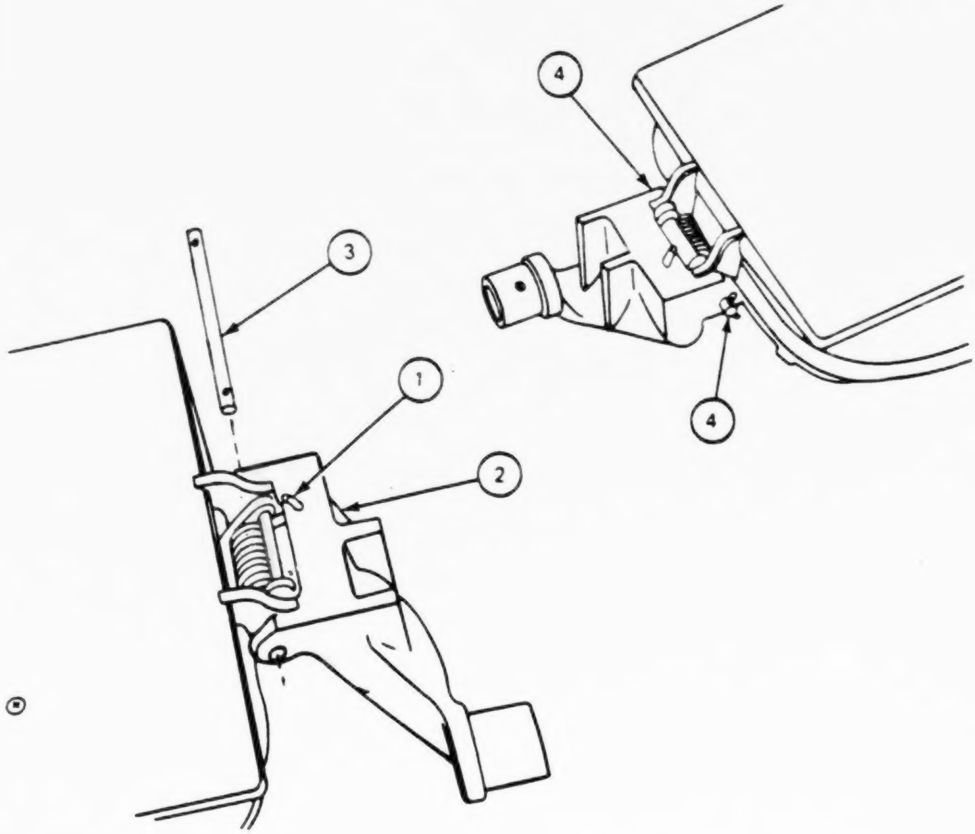

BACKREST ASSEMBLY
5
6
4
7
PIVOT PIN HOLE
SEAT ASSEMBLY
3
2
1

Para 24-5 Cont

## 24-5. SEAT AND BACKREST ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using pliers, hook spring tang (1) through hole in support bracket (2). |
|  | **NOTE**<br>Before doing next step, make sure sleeve inside of spring is in line with pivot pin holes of backrest brackets, seat brackets and support bracket. |
| 2. | Using hammer and punch, put in pivot pin (3). |
| 3. | Put two cotter pins (4) through pivot pin (3) (JPG). |
|  | END OF TASK |



## 24-6. SEAT DISASSEMBLY PROCEDURE

TOOLS: Flat tip screwdriver
Putty knife

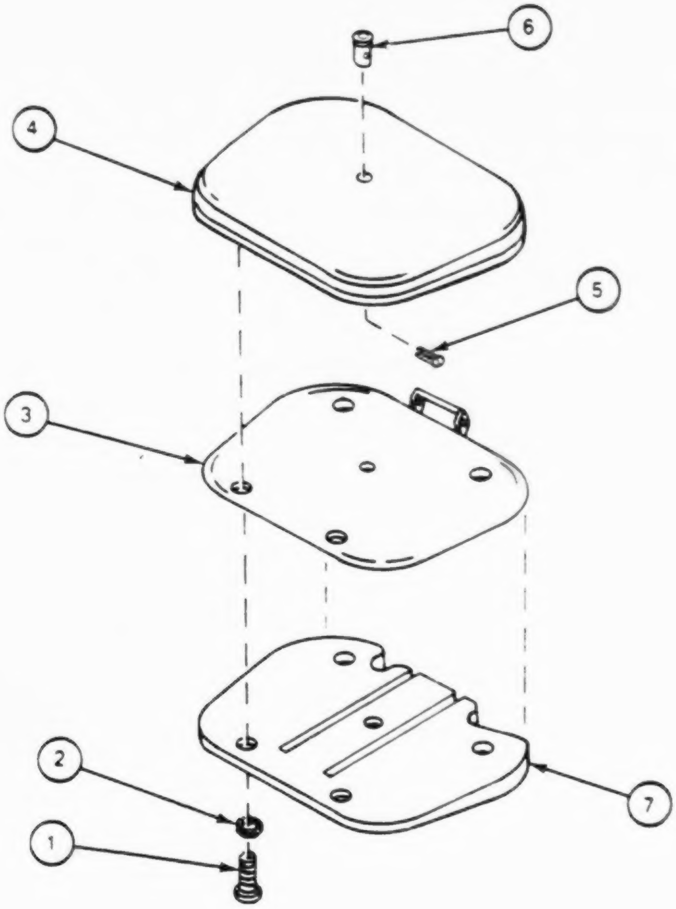
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pins

PRELIMINARY PROCEDURES: Remove seat from backrest (para 24-4)

**FRAME 1**

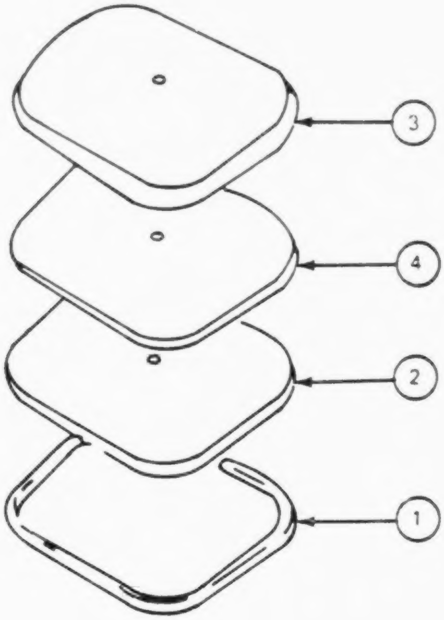
| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove four screws (1) and four lockwashers (2). |
| 2. | Remove seat support (3) from seat frame, cushion pad and cover (4). |
| 3. | Remove cotter pin (5) from retaining sleeve (6) (JPG). |
| 4. | Remove retaining sleeve (6) from seat frame, cushion pad and cover (4).<br>**NOTE**<br>Rubber pad (7) is cemented to underside of seat support (3). |
| 5. | Using putty knife, remove rubber pad (7) from seat support (3).<br>GO TO FRAME 2 |



## 24-6. SEAT DISASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1 | Remove molded rubber (1) from outer edges of seat frame (2). |
| 2 | Remove seat cover (3) from cushion pad (4). |
| | **NOTE**<br>Cushion pad is glued to seat frame. |
| 3 | Using putty knife, remove cushion pad (4) from seat frame (2).<br>END OF TASK |



## 24-7. SEAT ASSEMBLY PROCEDURE

TOOLS: Flat tip screwdriver

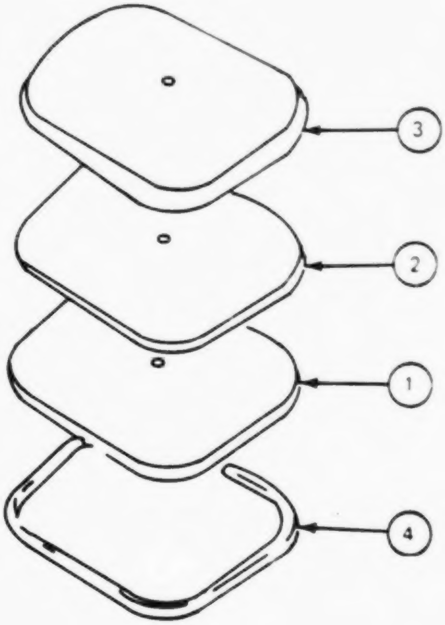
SUPPLIES: Cotter pin
Adhesive (item 4, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to:
Install cotter pins
Use adhesive

**FRAME 1**

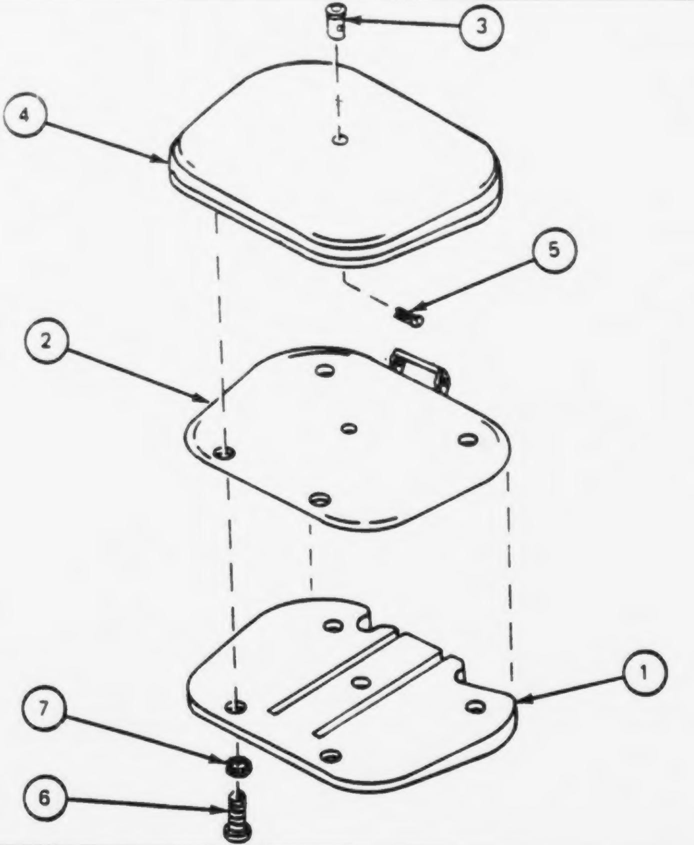
| Step | Procedure |
|---|---|
| 1. | Put coating of adhesive on surface of seat frame (1) (JPG). |
| 2. | Put cushion pad (2) on seat frame (1). |
| 3. | Put seat cover (3) on cushion pad (2). |
| 4. | Put molded rubber (4) on outer edges of seat frame (1). |
|  | GO TO FRAME 2 |



## 24-7. SEAT ASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Put coating of adhesive cement on surface of rubber pad (1) (JPG).<br>**NOTE**<br>When doing next step, make sure screw holes in rubber pad (1) are in line with screw holes in seat support (2). |
| 2. | Put rubber pad (1) on seat support (2). |
| 3. | Put retaining sleeve (3) through seat cover, cushion pad and frame (4). |
| 4. | Put cotter pin (5) through retaining sleeve (3) (JPG). |
| 5. | Put seat cover, cushion pad and frame (4) on seat support (2). |
| 6. | Using screwdriver, put four screws (6) and four lockwashers (7) in seat cover, cushion pad and frame (4).<br>END OF TASK |



## 24-8. BACKREST DISASSEMBLY PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
Putty knife

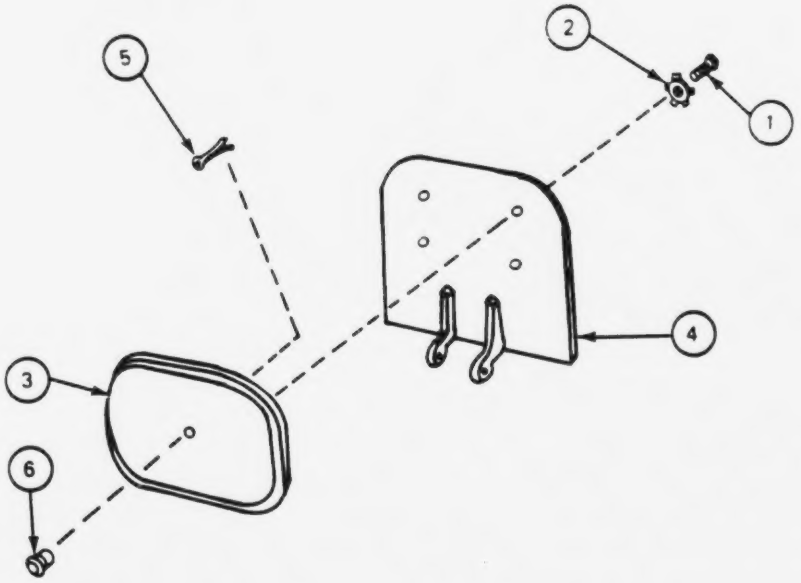
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pin

PRELIMINARY PROCEDURES: Remove backrest from seat (para 24-4)

**FRAME 1**

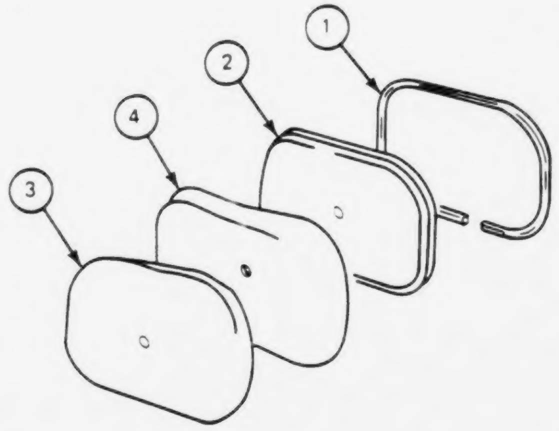
| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove four screws (1), and four lockwashers (2) attaching backrest frame (3) to backrest support (4). |
| 2. | Remove backrest support (4) from backrest frame (3). |
| 3. | Remove cotter pin (5) from retaining sleeve (6) (JPG). |
| 4. | Remove retaining sleeve (6) from backrest frame (3). |
| | GO TO FRAME 2 |



## 24-8. BACKREST DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Remove molded rubber (1) from backrest frame (2). |
| 2. | Remove cover (3) from rubber pad (4). |
| 3. | Using putty knife, remove rubber pad (4) from backrest frame (2). |
| | END OF TASK |



## 24-9. BACKREST ASSEMBLY PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)

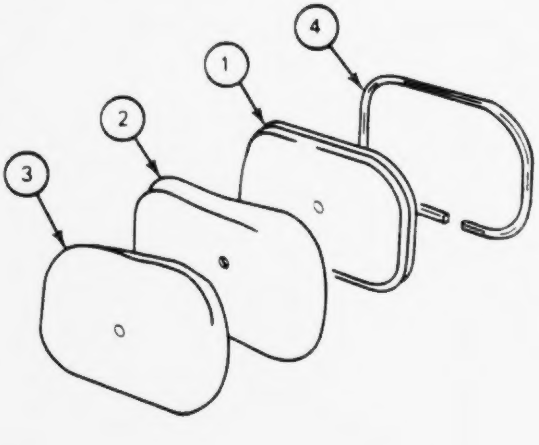
SUPPLIES: Cotter pin
Adhesive (item 4, App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to:
Install cotter pins
Use adhesive

**FRAME 1**

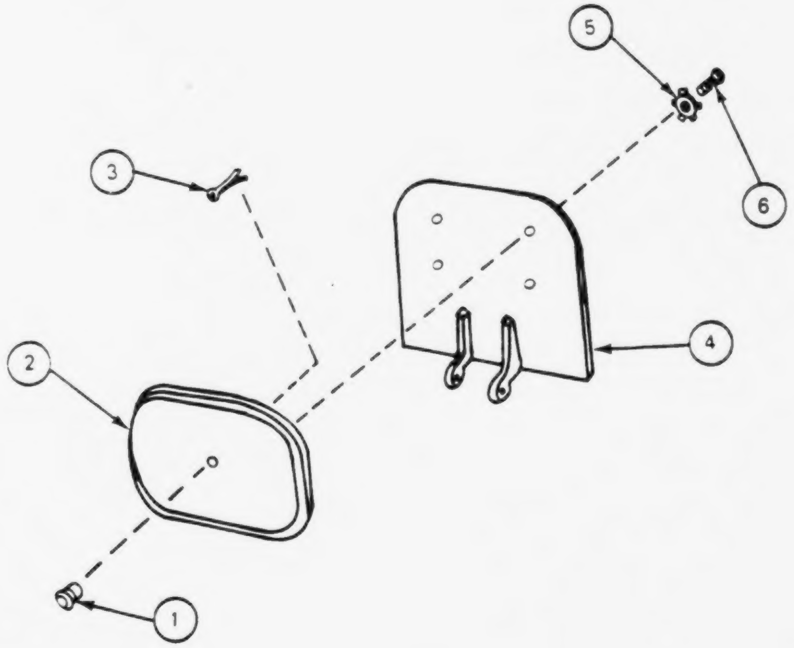
| Step | Procedure |
|---|---|
| 1. | Put coating of adhesive on surface of backrest frame (1) (JPG). |
| 2. | Put rubber pad (2) in backrest frame (1). |
| 3. | Put cover (3) on rubber pad (2). |
| 4. | Put molded rubber (4) in edge of backrest frame (1). |
|  | GO TO FRAME 2 |



## 24-9. BACKREST ASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Put retaining sleeve (1) through backrest pad, cover and frame (2). |
| 2. | Put cotter pin (3) through retaining sleeve (1) (JPG). |
| 3. | Using screwdriver, attach backrest support (4) to backrest frame (2) with four lockwashers (5) and four screws (6).<br>END OF TASK |



## 24-10. PLATFORM AND FOOTREST REMOVAL PROCEDURE

TOOLS: 3/4" combination wrench

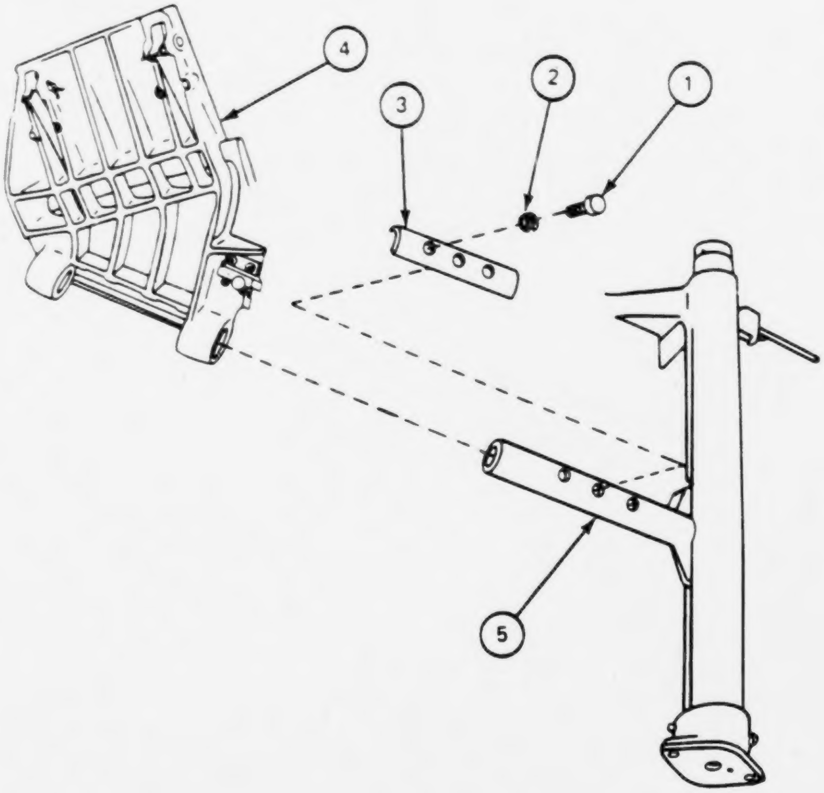
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, remove three screws (1) and three lockwashers (2) from stop (3). |
| 2. | Remove stop (3) and platform (4) from support tube (5). |
| | END OF TASK |



## 24-11. PLATFORM AND FOOTREST INSTALLATION PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
1/2" drive torque wrench (0-250 foot-pounds)

PERSONNEL: One

REFERENCES: JPG for procedure to use torque wrench

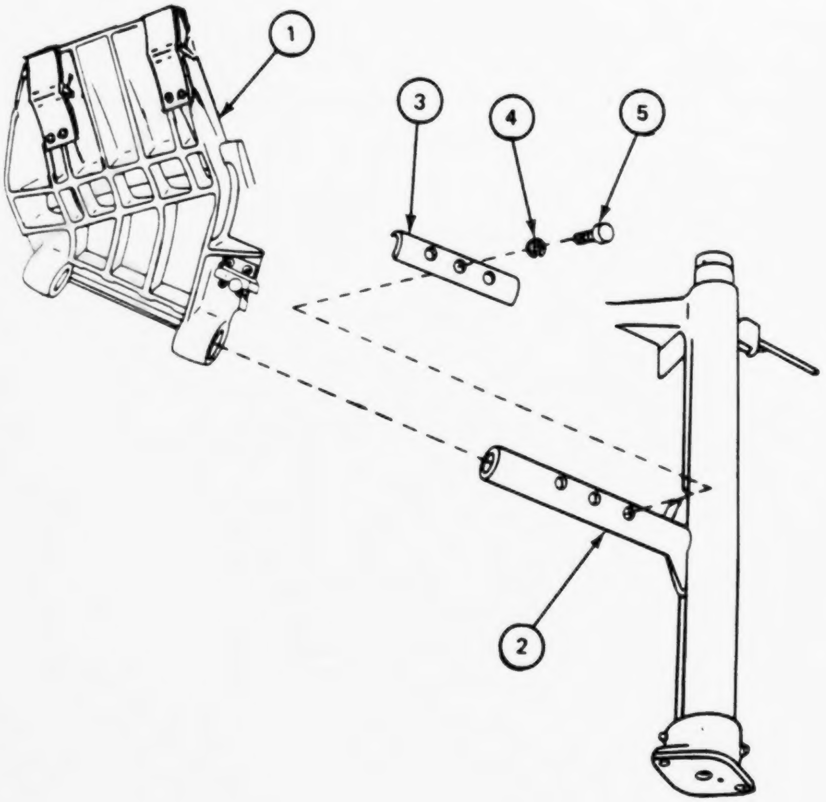
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |

## 24-11. PLATFORM AND FOOTREST INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put platform and footrest (1) on support tube (2). |
| 2. | Put stop (3) on support tube (2) so that curved portion of stop is placed against tube. |
| 3. | Put in three washers (4) and three screws (5). |
| 4. | Using torque wrench, tighten three screws (5) to 65 foot-pounds minimum (JPG).<br>END OF TASK |



## 24-12. PLATFORM AND FOOTREST DISASSEMBLY PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
7/16" combination wrench
5/32" drift pin punch
Hammer
Round nose pliers

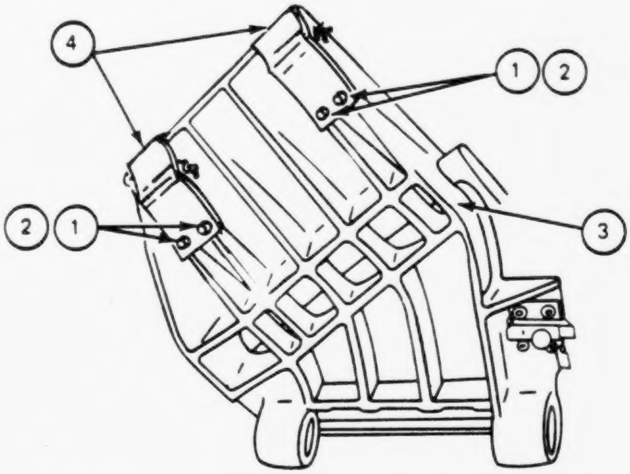
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pins

PRELIMINARY PROCEDURES: Remove platform and footrest (para 24-10)

**FRAME 1**

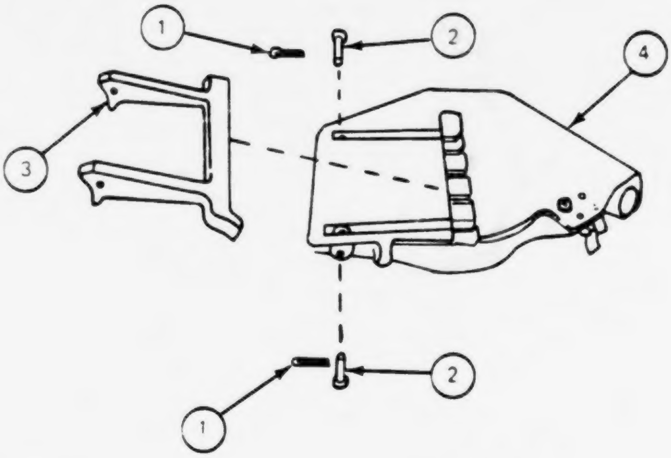
| Step | Procedure |
|---|---|
| 1. | Using wrench, remove four screws (1) and four lockwashers (2) from platform (3). |
| 2. | Remove two clips (4).<br>GO TO FRAME 2 |



## 24-12. PLATFORM AND FOOTREST DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

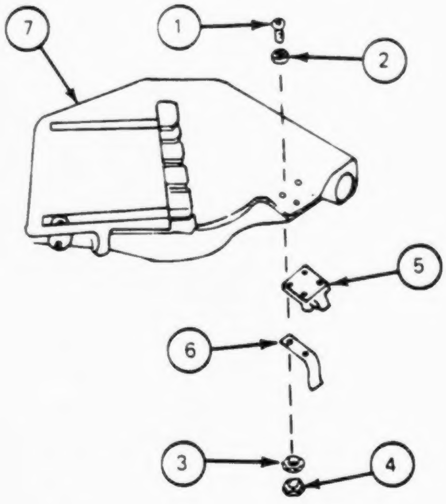
| Step | Procedure |
|---|---|
| 1. | Remove two cotter pins (1) (JPG). |
| 2. | Using punch and hammer, remove two pins (2). |
| 3. | Remove footrest (3) from platform (4).<br>GO TO FRAME 3 |



## 24-12. PLATFORM AND FOOTREST DISASSEMBLY PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver and wrench, remove four screws (1), four flat washers (2), four lockwashers (3), and four nuts (4). |
| 2. | Remove plunger (5) and double angle bracket (6) from platform (7).<br>END OF TASK |



## 24-13. PLATFORM AND FOOTREST ASSEMBLY PROCEDURE

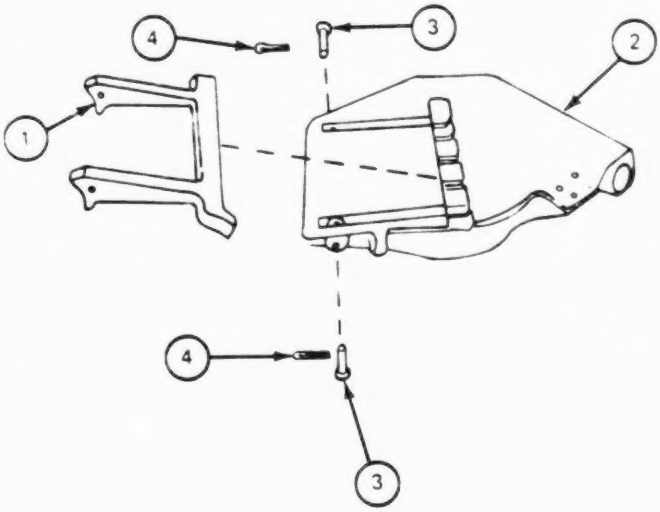
TOOLS: Cross tip screwdriver (Phillips)
7/16" combination wrench
Round nose pliers

PERSONNEL: One

REFERENCES: JPG for procedure to install cotter pins

**FRAME 1**

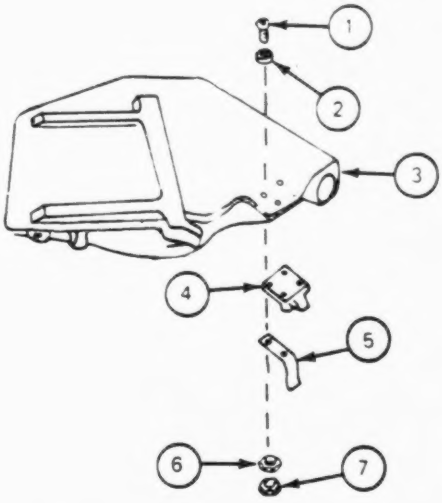
| Step | Procedure |
|---|---|
| 1. | Put footrest (1) on platform (2). |
| 2. | Put two pins (3) through platform (2) and footrest (1). |
| 3. | Put two cotter pins (4) through ends of two pins (3) (JPG). |
| | GO TO FRAME 2 |



## 24-13. PLATFORM AND FOOTREST ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

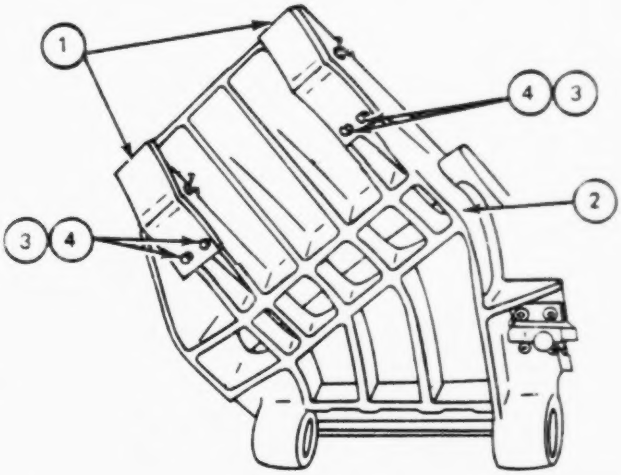
| Step | Procedure |
|---|---|
| 1. | Put four screws (1) with four flat washers (2) through platform (3). |
| 2. | Put rim latch (4) and double angle bracket (5) on screws (1). |
| 3. | Using screwdriver on screws (1), put four lockwashers (6) and four nuts (7) on four screws (1). |
| 4. | Using combination wrench, tighten four nuts (7). |
|  | GO TO FRAME 3 |



## 24-13. PLATFORM AND FOOTREST ASSEMBLY PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Put in two clips (1). |
| 2. | Using wrench, attach clips (1) to platform (2) with four screws (3) and four lockwashers (4).<br>END OF TASK |



## 24-14. ELEVATION ADJUST HANDLE DISASSEMBLY PROCEDURE

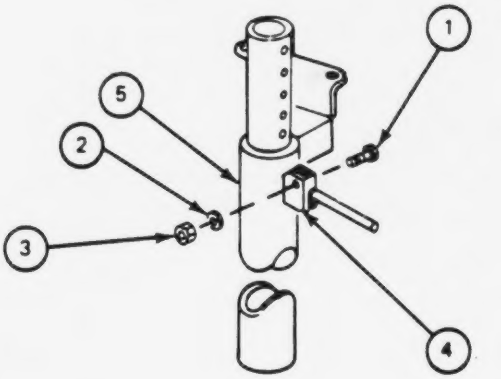
TOOLS: 5/32" drift pin punch
7/16" combination wrench (two)
Hammer

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove support tube (para 24-16)

**FRAME 1**

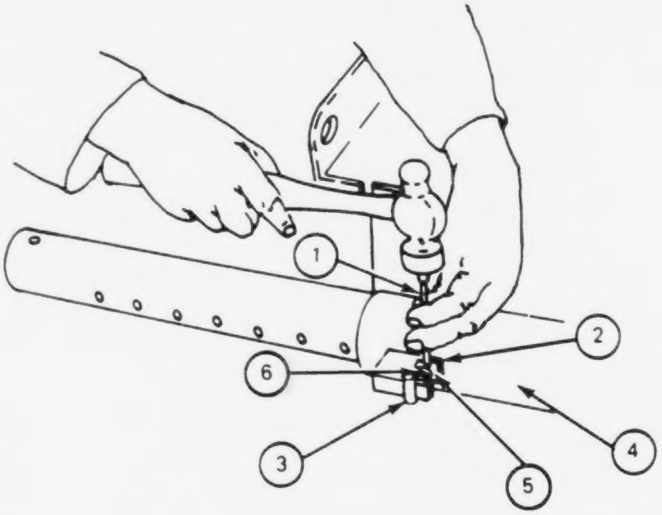
| Step | Procedure |
|---|---|
| 1. | Using two wrenches, remove screw (1), flat washer (2) and nut (3) from elevation handle bracket (4). |
| 2. | Remove elevation handle bracket (4) from support tube (5).<br>GO TO FRAME 2 |



## 24-14. ELEVATION ADJUST HANDLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using hammer and punch (1), remove spring pin (2) from locking pin (3). |
| 2. | Remove locking pin (3) from support tube (4). |
| 3. | Remove retainer (5) and spring (6) from support tube (4). |
| | END OF TASK |



## 24-15. ELEVATION ADJUST HANDLE ASSEMBLY PROCEDURE

TOOLS: 5/32" drift pin punch
7/16" combination wrench (two)
Hammer

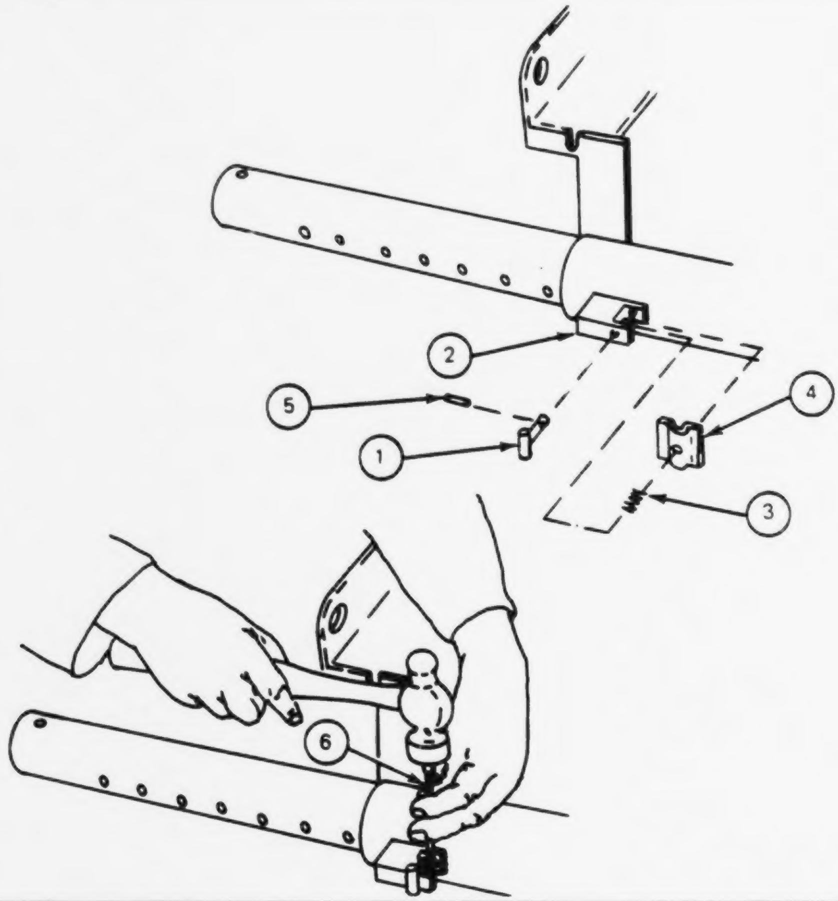
SUPPLIES: Spring pin

PERSONNEL: One

## 24-15. ELEVATION ADJUST HANDLE ASSEMBLY PROCEDURE (CONT)

**FRAME 1**

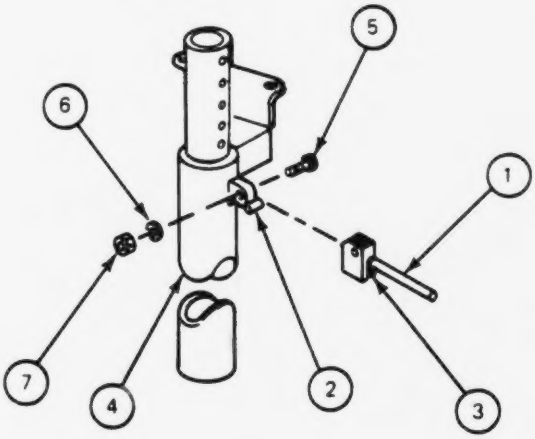
| Step | Procedure |
|---|---|
| 1. | Place locking pin (1) half way into bracket (2). |
| 2. | Put spring (3) and pin retainer (4) on locking pin (1). |
| 3. | Push locking pin (1) into bracket (2). |
|  | **NOTE**<br>To put in spring pin (5) in next step, press against pin retainer (4) to compress spring (3) and uncover the spring pin mounting hole. |
| 4. | Using hammer and punch (6), tap new spring pin (5) through locking pin (1).<br>GO TO FRAME 2 |



## 24-15. ELEVATION ADJUST HANDLE ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| | **NOTE**<br>When putting in elevation adjust handle (1) in next step, make sure locking pin (2) is pulled out by hand to let slot (3) fit over locking pin shaft. |
| 1. | Put elevation handle (1) on support tube (4). |
| 2. | Using wrench, put in screw (5), washer (6), and nut (7). |
| | END OF TASK |



## 24-16. SUPPORT TUBE REMOVAL PROCEDURE

TOOLS: 1-1/8" socket (1/2" drive)
3/4" socket (1/2" drive)
1/2" drive ratchet
9" extension (1/2" drive)
1/2" drive breaker bar

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
**Traverse turret**
**Set turret traverse lock to LOCKED**

EQUIPMENT LOCATION INFORMATION:

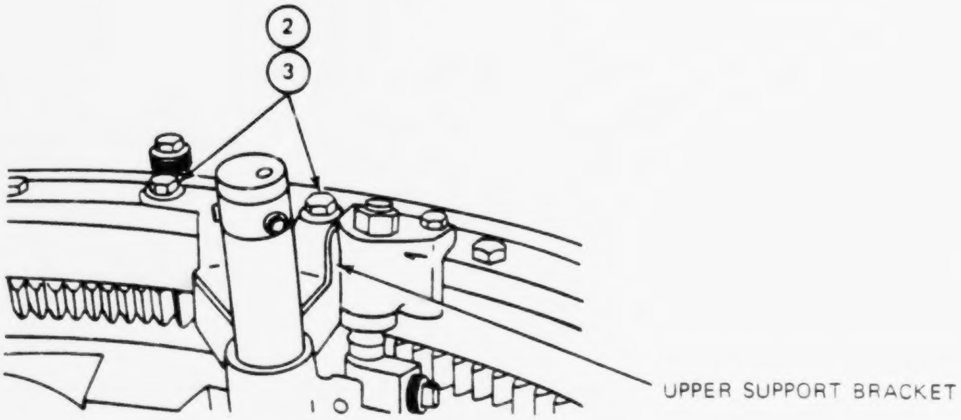
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

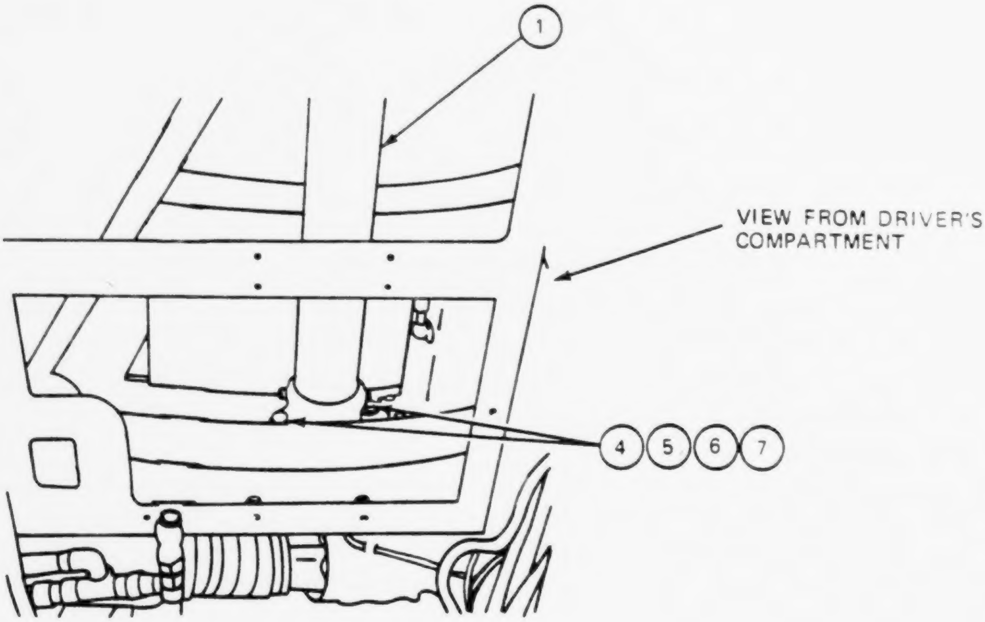
PRELIMINARY PROCEDURES: Remove seat and backrest (para 24-2)

## 24-16. SUPPORT TUBE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until support tube (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Using 1-1/8" socket wrench, remove two screws (2), and two flat washers (3) from upper support bracket. |
| | **NOTE**<br>Step 4 is done from the driver's compartment. |
| 4. | Using 3/4" socket wrench, remove two screws (4), two flat washers (5), two nuts (6), and two lockwashers (7). |
| 5. | Remove support tube (1). |
| | END OF TASK |


2
3
UPPER SUPPORT BRACKET


VIEW FROM DRIVER'S COMPARTMENT

## 24-17. SUPPORT TUBE INSTALLATION PROCEDURE

TOOLS: 1-1/8" socket wrench (1/2" drive)
3/4" socket (1/2" drive)
1/2" drive ratchet
9" extension (1/2" drive)
1/2" drive breaker bar

PERSONNEL: One

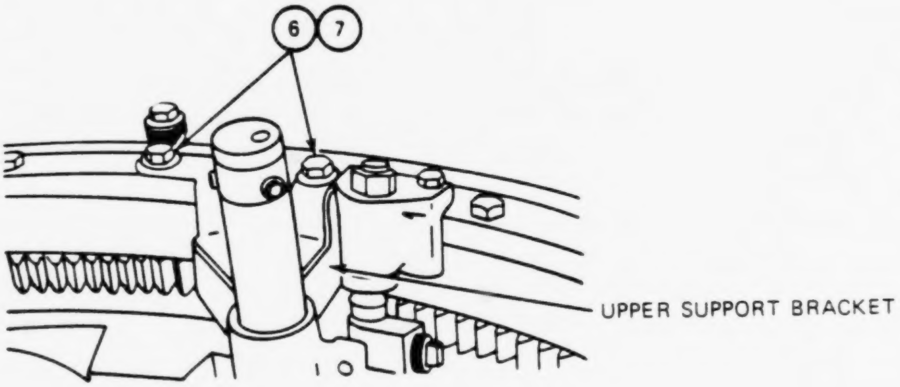
REFERENCES: TM 9-2350-222-10 for procedures to:
Traverse turret
Set turret traverse lock to LOCKED

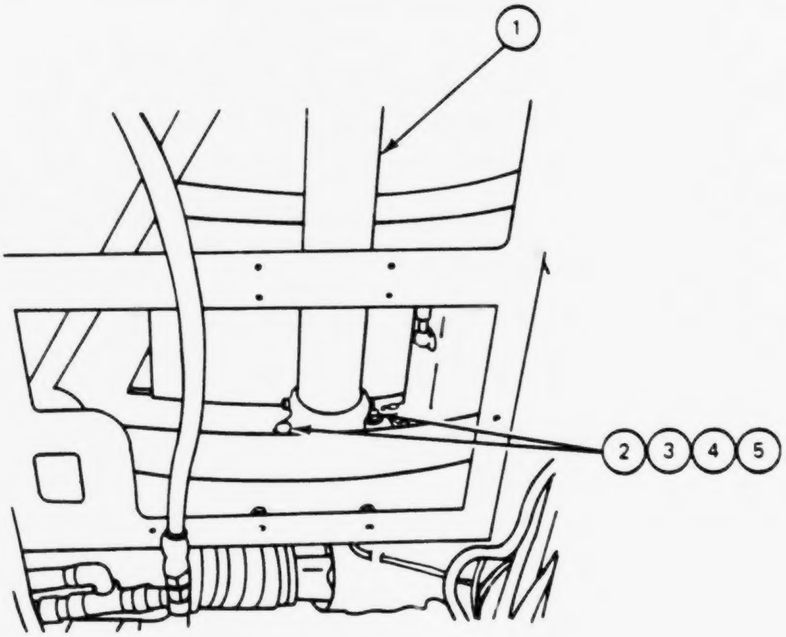
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Commander's Seat | FO-2 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Traverse turret until support tube (1) can be reached from driver's compartment (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Put support tube (1) in mounting position. |
| | **NOTE**<br>Step 4 is done from driver's compartment. |
| 4. | Using 3/4" socket wrench, attach support tube (1) to turret floor with two screws (2), two flat washers (3), two lockwashers (4), and two nuts (5). |
| 5. | Using 1-1/8" socket wrench, attach upper support bracket to turret with two screws (6) and two flat washers (7). |
| | END OF TASK |


6
7
UPPER SUPPORT BRACKET



## 24-18. SUPPORT TUBE DISASSEMBLY PROCEDURE

TOOLS: 7/16" combination wrench

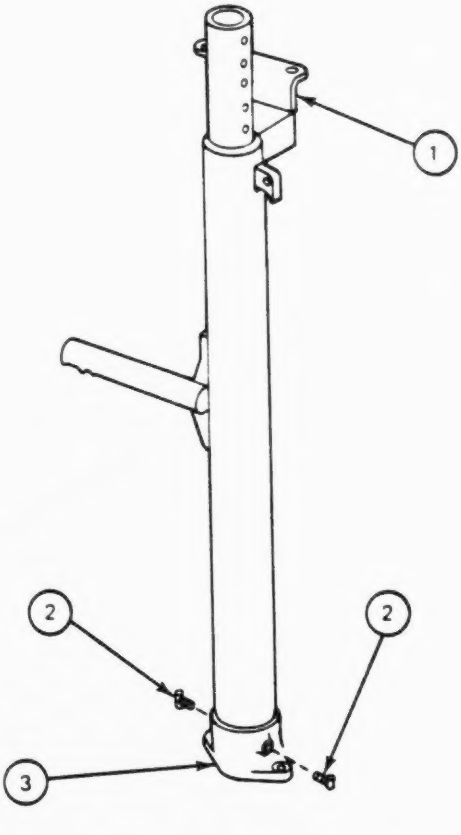
SUPPLIES: Pencil

PERSONNEL: Two

PRELIMINARY PROCEDURES: Remove platform and footrest (para 24-10)
Remove support tube (para 24-16)

**FRAME 1**

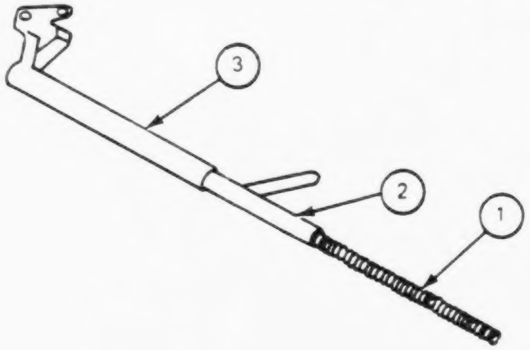
| Step | Procedure |
|---|---|
| 1. | Put support tube in a vertical position with bottom of tube resting on a solid surface. |
| 2. | Soldier A: Press down and hold outer support tube (1) so that tension on compressed spring inside tube can be released slowly when setscrews (2) are removed. |
| 3. | Soldier B: Using pencil, scribe a line from support tube (1) to retainer (3) to help line up support tube (1) with retainer (3) during assembly. |
| | **WARNING**<br>Support assembly is under spring tension. Take care that spring does not fly out and hit you when removing setscrews (2) and retainer (3). |
| 4. | Soldier B: Using wrench, remove two setscrews (2) from retainer (3). |
| 5. | Soldier B: Remove retainer (3) from support tube (1). |
| | GO TO FRAME 2 |



## 24-18. SUPPORT TUBE DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Remove spring (1) and inner support tube (2) from outer support tube (3).<br>END OF TASK |



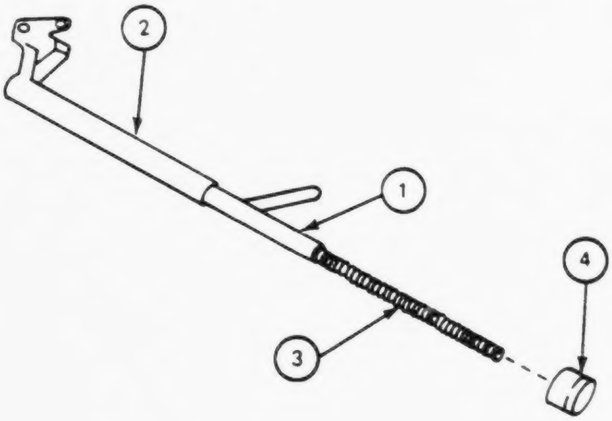
## 24-19. SUPPORT TUBE ASSEMBLY PROCEDURE

TOOLS: 7/16' combination wrench

PERSONNEL: Two

**FRAME 1**

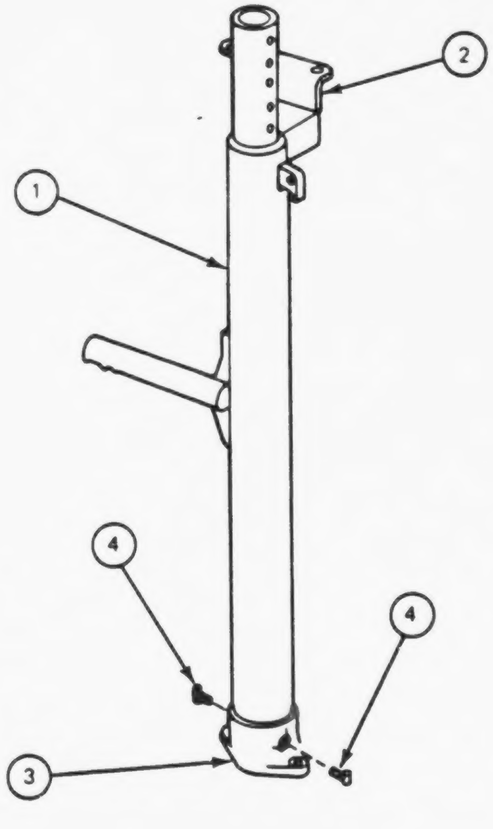
| Step | Procedure |
|---|---|
| 1. | Put inner support tube (1) into outer support tube (2). |
| 2. | Put spring (3) into inner support tube (1). |
| | **NOTE**<br>When doing following step, make sure round guide post inside of retainer (4) is put inside coil of spring (3). |
| 3. | Place retainer (4) on end of spring (3). Line up scribe marks made during disassembly on retainer (4) and support tube (1).<br>GO TO FRAME 2 |



## 24-19. SUPPORT TUBE ASSEMBLY PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| | **NOTE**<br>Two soldiers are needed to do steps 1, 2 and 3. |
| 1. | Soldier A: Place support tube (1) in vertical position. |
| 2. | Soldier A: Press down and hold outer support tube (2) so that spring is compressed and bottom end of support tube (1) is firmly seated in retainer (3). Continue to press down until next step is completed. |
| 3. | Soldier B: Using wrench, install two screws (4). |
| | END OF TASK |



# CHAPTER 25

# 5-GALLON CONTAINER BRACKET

## 25-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| 5-Gallon Container Bracket | 25-2 | 25-3 |

## 25-2. 5-GALLON CONTAINER BRACKET REMOVAL PROCEDURE

TOOLS: 5/16" socket (1/2" drive)
1/2" drive ratchet
5" extension

PERSONNEL: One

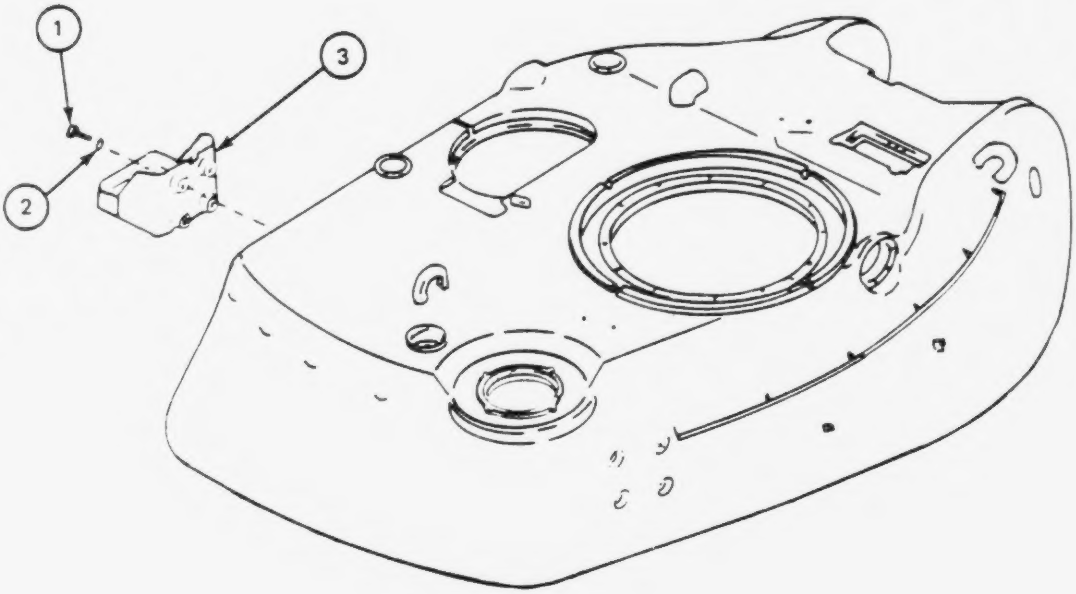
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, remove four bolts (1) and four lockwashers (2). |
| 2. | Remove 5-gallon container bracket (3). |
|  | END OF TASK |



## 25-3. 5-GALLON CONTAINER BRACKET INSTALLATION PROCEDURE

TOOLS: 9/16" socket (1/2" drive)
1/2" drive ratchet
5" extension

PERSONNEL: One

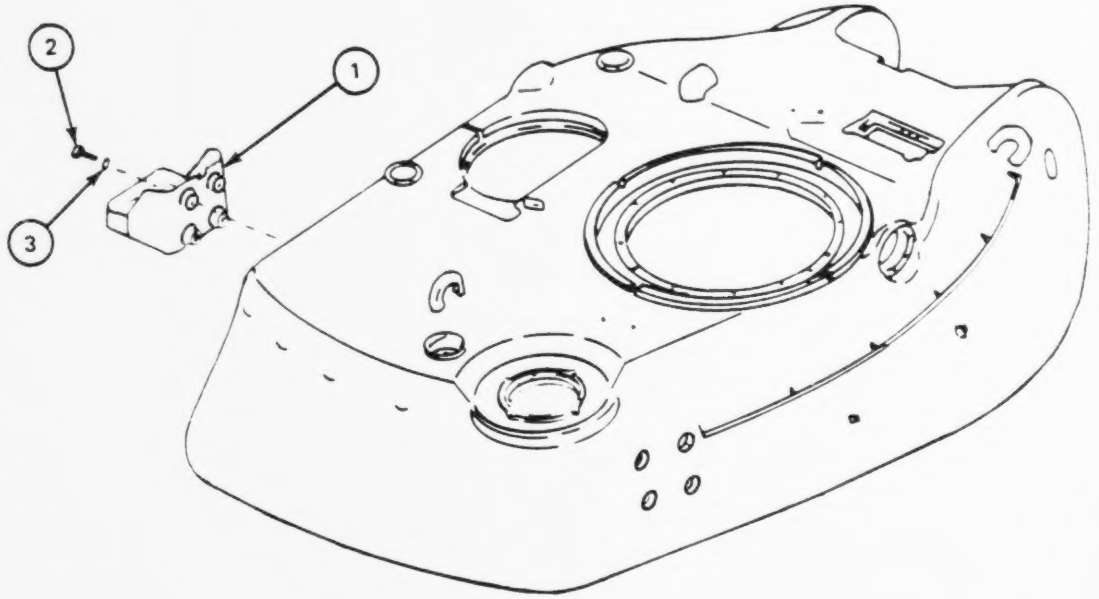
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, attach 5-gallon container bracket (1) to outside of turret with four bolts (2) and four lockwashers (3).<br>END OF TASK |



# CHAPTER 26

# LOADER'S PERISCOPE BOX

## 26-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | |
|---|---|---|
| **Equipment Item** | **Removal** | **Installation** |
| Loader's Periscope Box | 26-2 | 26-3 |

## 26-2. LOADER'S PERISCOPE BOX REMOVAL PROCEDURE

TOOL: 9/16" open end wrench

PERSONNEL: One

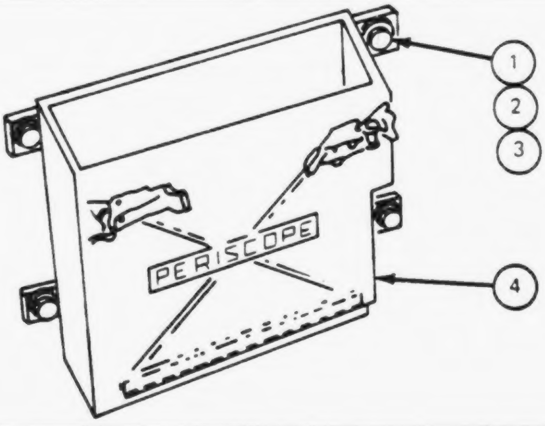
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Loader's Periscope Box | FO-4 | 19 |

EQUIPMENT CONDITION: Periscope removed from periscope box

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, remove four screws (1), four lockwashers (2), and four flat washers (3) that attach periscope box (4) to turret wall. Remove loader's periscope box.<br>END OF TASK |



## 26-3. LOADER'S PERISCOPE BOX INSTALLATION PROCEDURE

TOOLS: 9/16" open end wrench

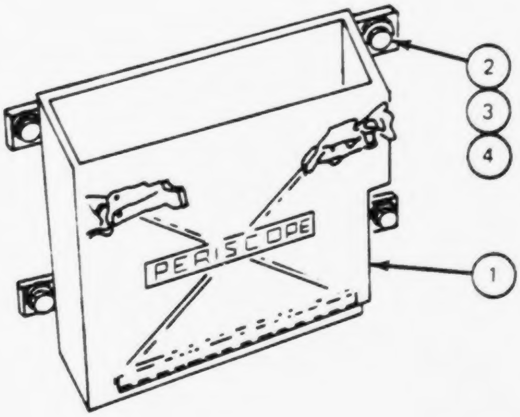
PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Loader's Periscope Box | FO-4 | 19 |

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, attach periscope box (1) to turret wall with four screws (2), four lockwashers (3) and four flat washers (4).<br>END OF TASK |



# CHAPTER 27

# 7.62-MM READY ROUND AMMUNITION BOX AND COVER

---

## 27-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| 7.62-MM Ready Round Ammunition Box and Cover | 27-2 | 27-3 |

## 27-2. 7.62-MM READY ROUND AMMUNITION BOX AND COVER REMOVAL PROCEDURE

TOOLS: 9/16" open end wrench

SUPPLIES: Pencil

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

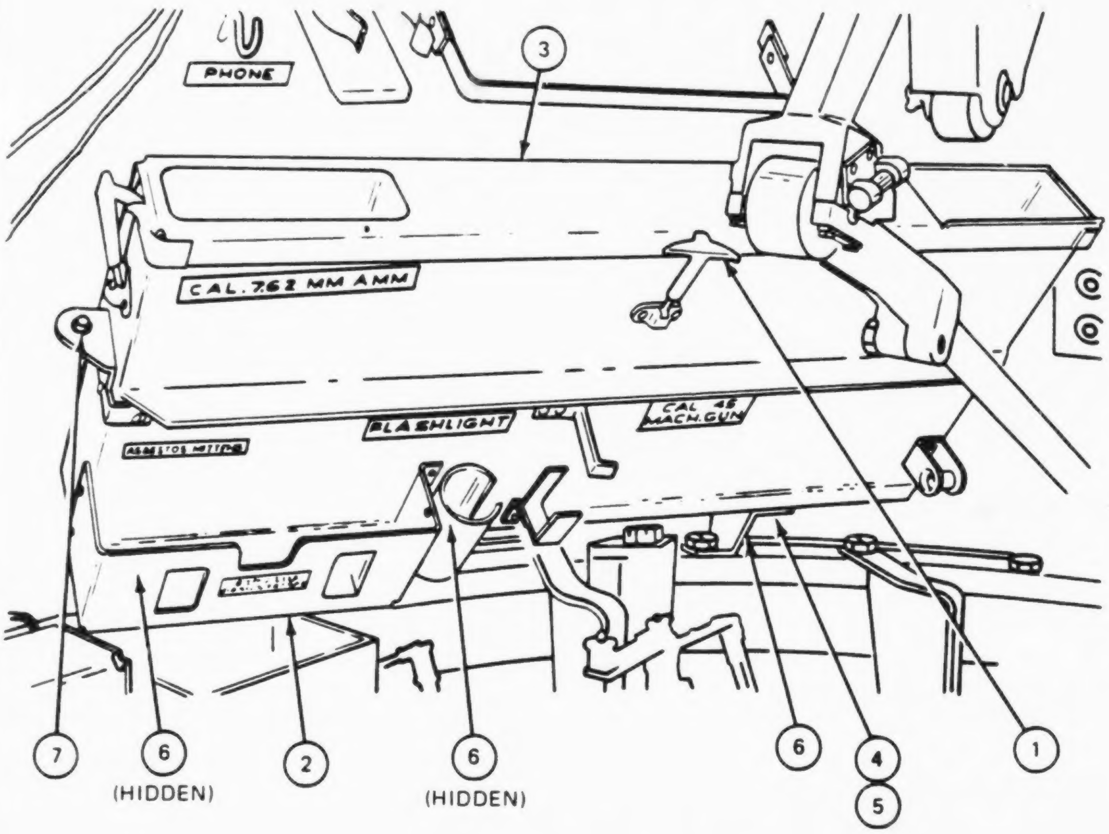
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| 7.62-mm Ready Round Ammunition Box and Cover | FO-4 | 21 |

EQUIPMENT CONDITION: All loose items and ammunition removed from ammunition box

## 27-2. 7.62-MM READY ROUND AMMUNITION BOX AND COVER REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Unfasten three fasteners (1) on ammunition box (2) that attach cover (3). Remove ammunition box cover. |
| 2. | Using open end wrench, remove three screws (4) and three flat washers (5) that attach ammunition box (2) to three mounting brackets (6). |
| 3. | Lift ammunition box (2) straight up and off two ammunition box mounting pins (7). |
| 4. | Remove ammunition box (2). |
|  | END OF TASK |


PHONE
3
CAL.7.62 MM AMM
FLASHLIGHT
CAL 45 MACH.GUN
7
6
(HIDDEN)
2
6
(HIDDEN)
6
4
5
1

Para 27-2 Cont

## 27-3. 7.62-MM READY ROUND AMMUNITION BOX AND COVER INSTALLATION PROCEDURE

TOOLS: 1-1/8″ socket (1/2″ drive)
9/16″ open end wrench
1/2″ drive hinge handle

PERSONNEL: One

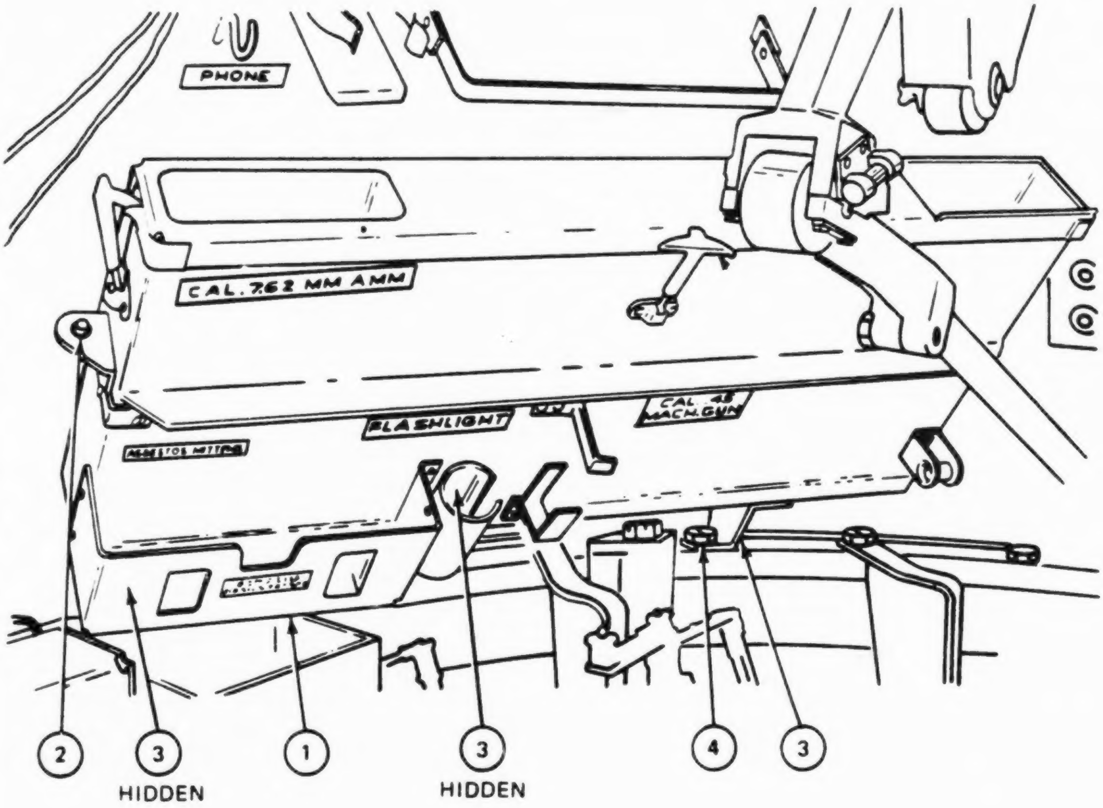
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| 7.62-mm Ready Round Ammunition Box and Cover | FO-4 | 21 |

## 27-3. 7.62-MM READY ROUND AMMUNITION BOX AND COVER INSTALLATION PROCEDURE (CONT)

**FRAME 1**

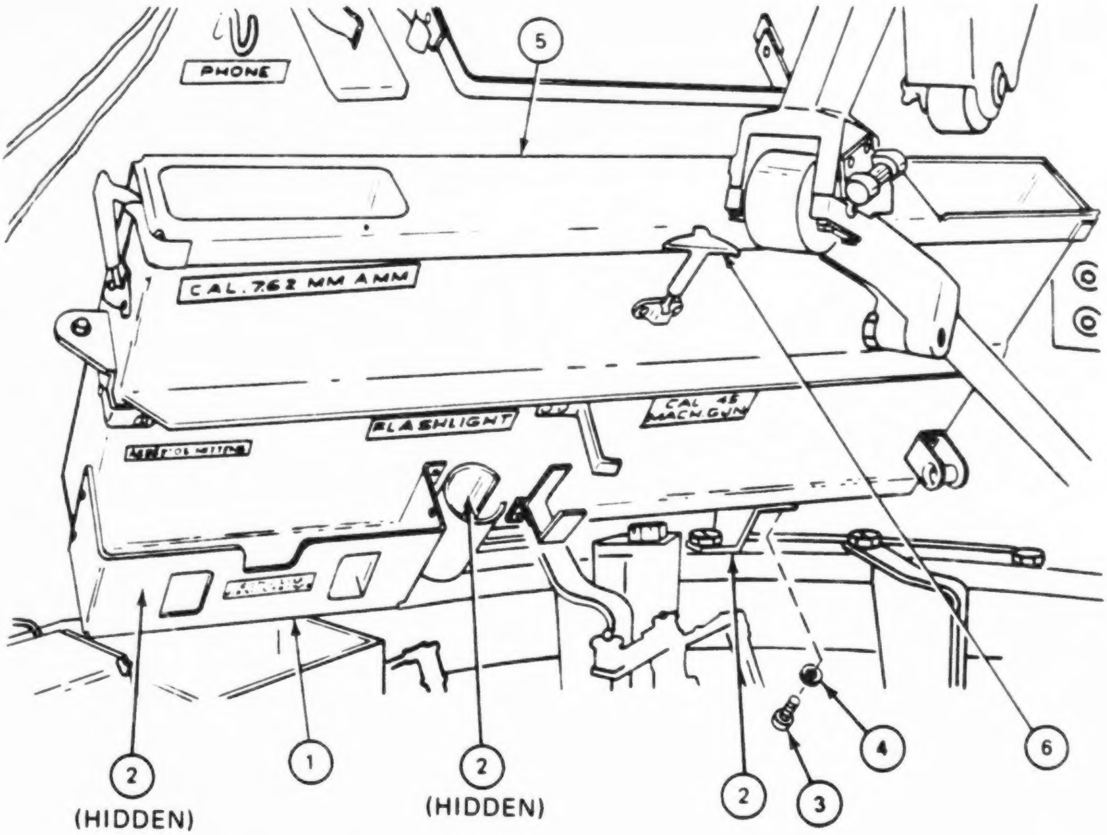
| Step | Procedure |
|---|---|
| 1. | Place ammunition box (1) on box mounting pins (2) in turret.<br>**NOTE**<br>Check that bottom of ammunition box (1) sits flat on three mounting brackets (3). Mounting brackets can be adjusted by loosening bolts (4) to get a better fit with ammunition box (1). Tighten bolts (4) as required using socket wrench.<br>GO TO FRAME 2 |


PHONE
CAL.7.62 MM AMM
FLASHLIGHT
CAL 45 MACH.GUN
2
3
HIDDEN
1
3
HIDDEN
4
3

## 27-3. 7.62-MM READY ROUND AMMUNITION BOX AND COVER INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using open end wrench, attach ammunition box (1) to three mounting brackets (2) with three screws (3) and three flat washers (4). |
| 2. | Place cover (5) on ammunition box (1) and fasten three fasteners (6). |
|  | END OF TASK |

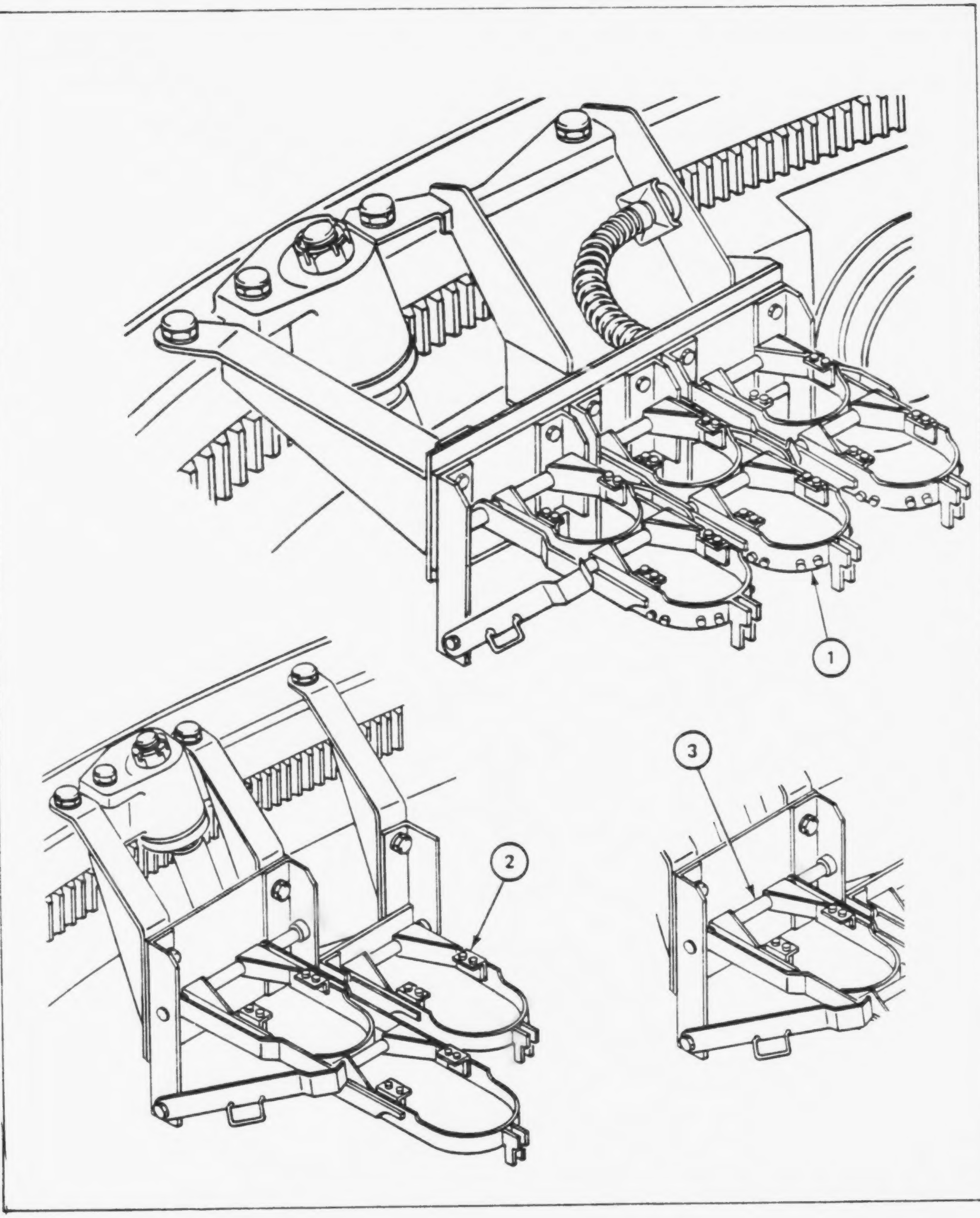

PHONE
5
CAL. 7.62 MM AMM
FLASHLIGHT
CAL 45 MACH GUN
2
(HIDDEN)
1
2
(HIDDEN)
2
3
4
6

# CHAPTER 28

# 165-MM AMMUNITION RACK RETAINER

## 28-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| 1. 165-MM Six Round Ammunition Rack | 28-2 | 28-3 |
| 2. 165-MM Three Round Ammunition Rack | 28-4 | 28-5 |
| 3. 165-MM Ammunition Retaining Clamps | 28-6 | 28-7 |



## 28-2. 165-MM SIX ROUND AMMUNITION RACK REMOVAL PROCEDURE

TOOLS: 1-1/8" socket (1/2" drive)
1/2" drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to remove ammunition

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Electric Air Filter Heater | FO-4 | 17 |
| 165-MM Six Round Ammunition Rack | FO-4 | 15 |

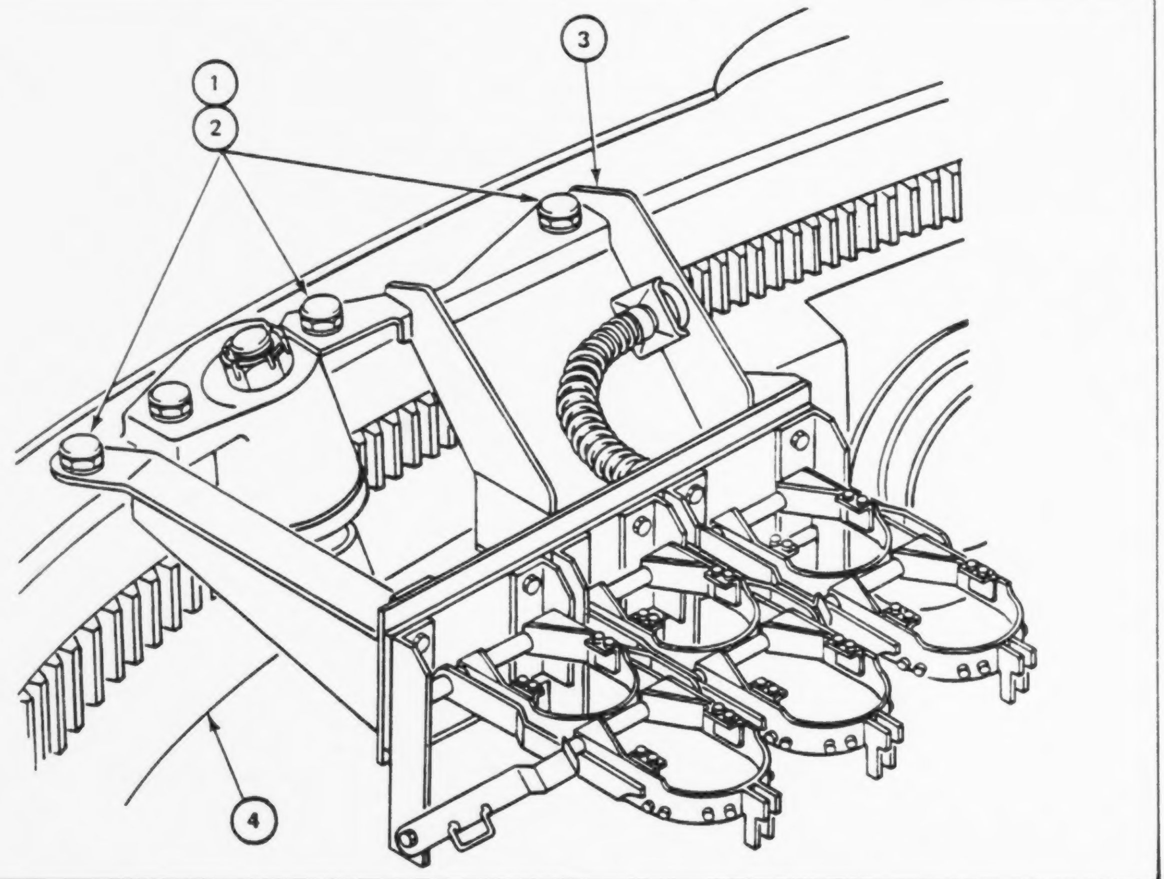
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Ammunition removed from ammunition retaining clamps (TM-10)

PRELIMINARY PROCEDURES: Remove loader's electric air filter heater (para 60-8)

## 28-2. 165-MM SIX ROUND AMMUNITION RACK REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **WARNING**<br>When removing last bolt (1), be careful that rack assembly does not fall from turret ring. Injury could result. |
| 1. | Using socket wrench, remove three bolts (1) and six lockwashers (2) that attach ammunition rack (3) to turret ring (4). Remove rack.<br>END OF TASK |



## 28-3. 165-MM SIX ROUND AMMUNITION RACK INSTALLATION PROCEDURE

TOOLS: 1-1/8" socket (1/2" drive)
1/2" drive ratchet

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

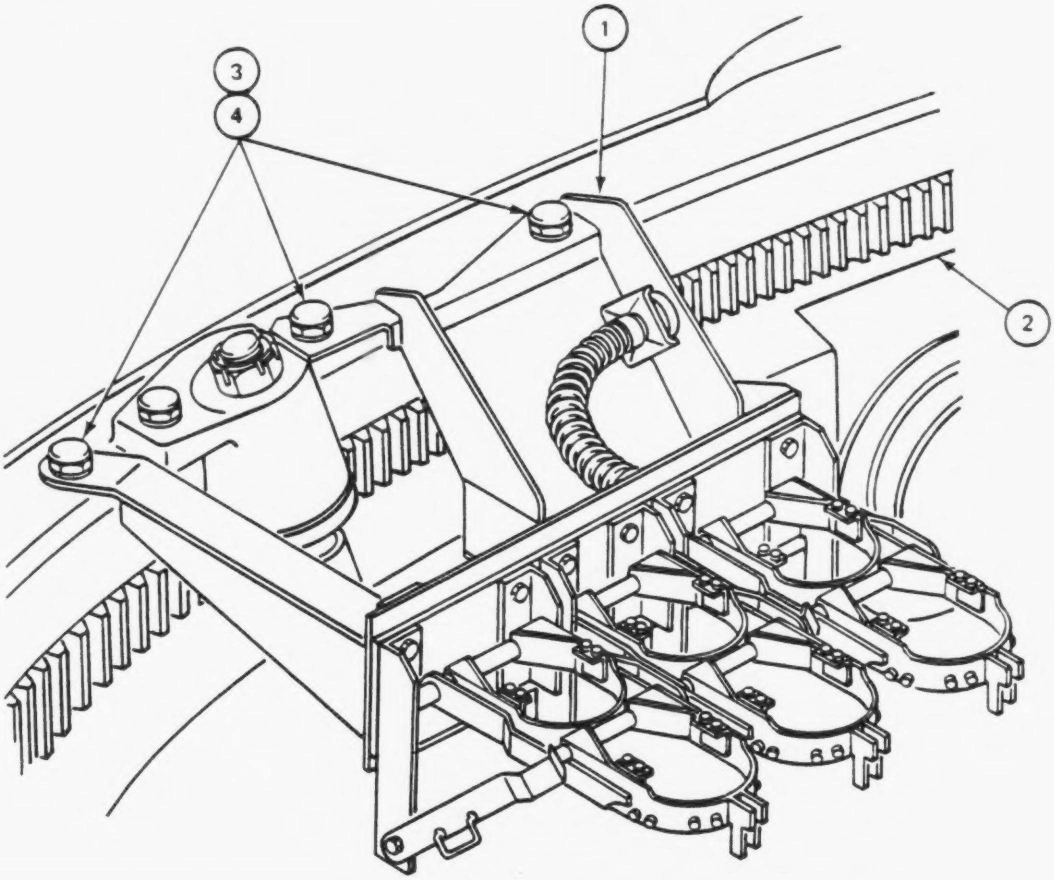
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-MM Six Round Ammunition Rack | FO-4 | 15 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 28-3. 165-MM SIX ROUND AMMUNITION RACK INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, attach ammunition rack (1) to turret ring (2) with three bolts (3) and six lockwashers (4).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>**Install loader's electric air filter heater (para 60-9).**<br>END OF TASK |



## 28-4. 165-MM THREE ROUND AMMUNITION RACK REMOVAL PROCEDURE

TOOLS: 1-1/8" socket (1/2" drive)
1/2" drive ratachet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to remove ammunition

EQUIPMENT LOCATION INFORMATION:

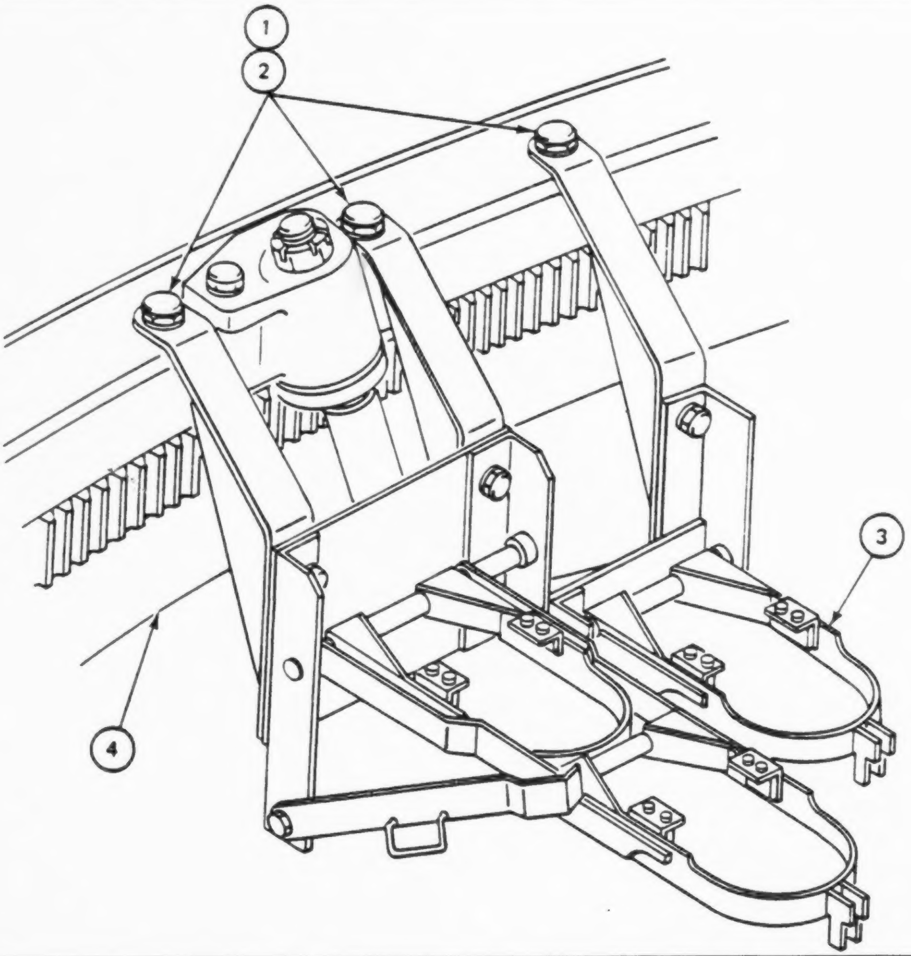
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-MM Three Round Ammunition Rack | FO-4 | 18 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to **OFF**
Ammunition removed from ammunition retaining clamps (TM-10)

## 28-4. 165-MM THREE ROUND AMMUNITION RACK REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **WARNING**<br>When removing last bolt (1), be careful that rack assembly does not fall from turret ring. Injury could result. |
| 1. | Using socket wrench, remove three bolts (1) and six lockwashers (2) that attach ammunition rack (3) to turret ring (4). Remove rack.<br>END OF TASK |



## 28-5. 165-MM THREE ROUND AMMUNITION RACK INSTALLATION PROCEDURE

TOOLS: 1-1/8" socket (1/2" drive)
1/2" drive ratchet

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

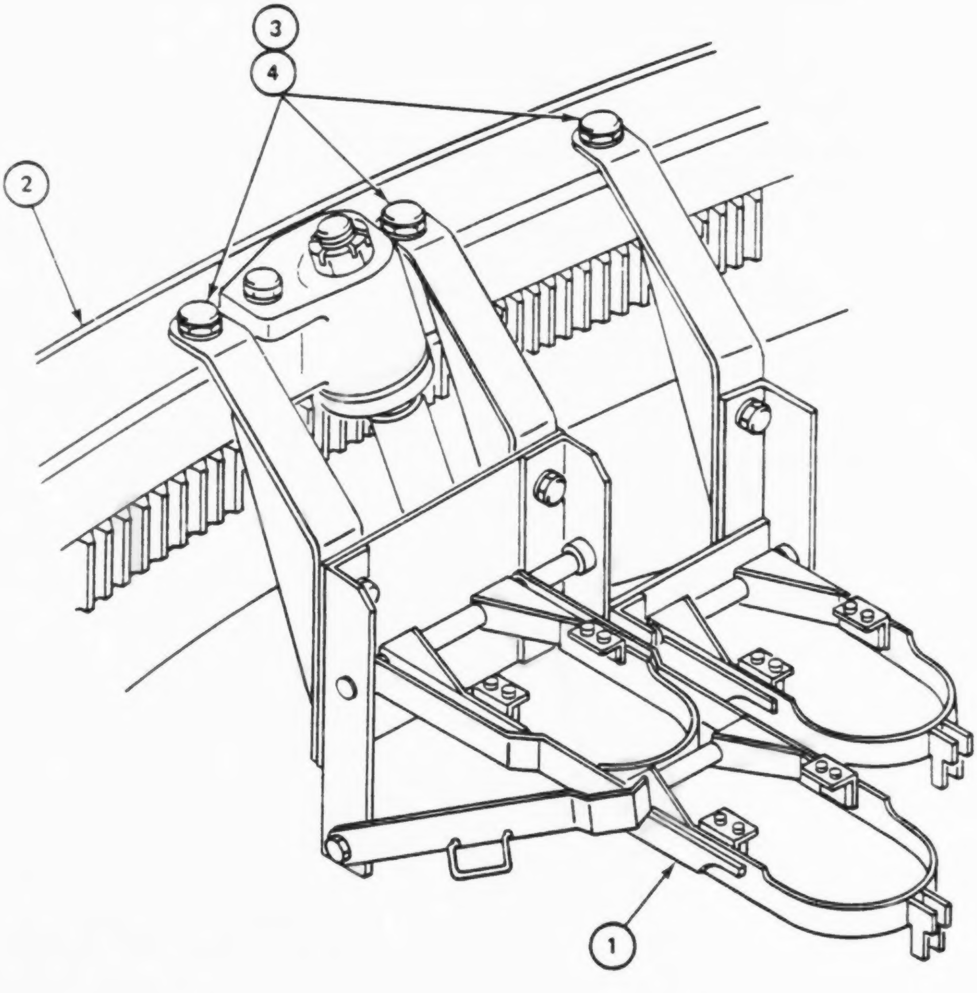
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-MM Three Round Ammunition Rack | FO-4 | 18 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to **OFF**

## 28-5. 165-MM THREE ROUND AMMUNITION RACK INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, attach ammunition rack (1) to turret ring (2) with three bolts (3) and six lockwashers (4).<br>END OF TASK |



## 28-6. 165-MM AMMUNITION RETAINING CLAMPS REMOVAL PROCEDURE

TOOLS: 7/16" socket (1/2" drive)
1/2" drive ratchet
7/16" combination wrench

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-MM Six Round Ammunition Rack | FO-4 | 15 |
| 165-MM Three Round Ammunition Rack | FO-4 | 18 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Ammunition removed from ammunition retaining clamps (TM-10)

**NOTE**

This procedure can be done with ammunition rack installed or removed from vehicle.

PRELIMINARY PROCEDURES: If rack is installed, remove six round or three round ammunition rack as applicable (para 28-2) or (para 28-4)

GENERAL INSTRUCTIONS:

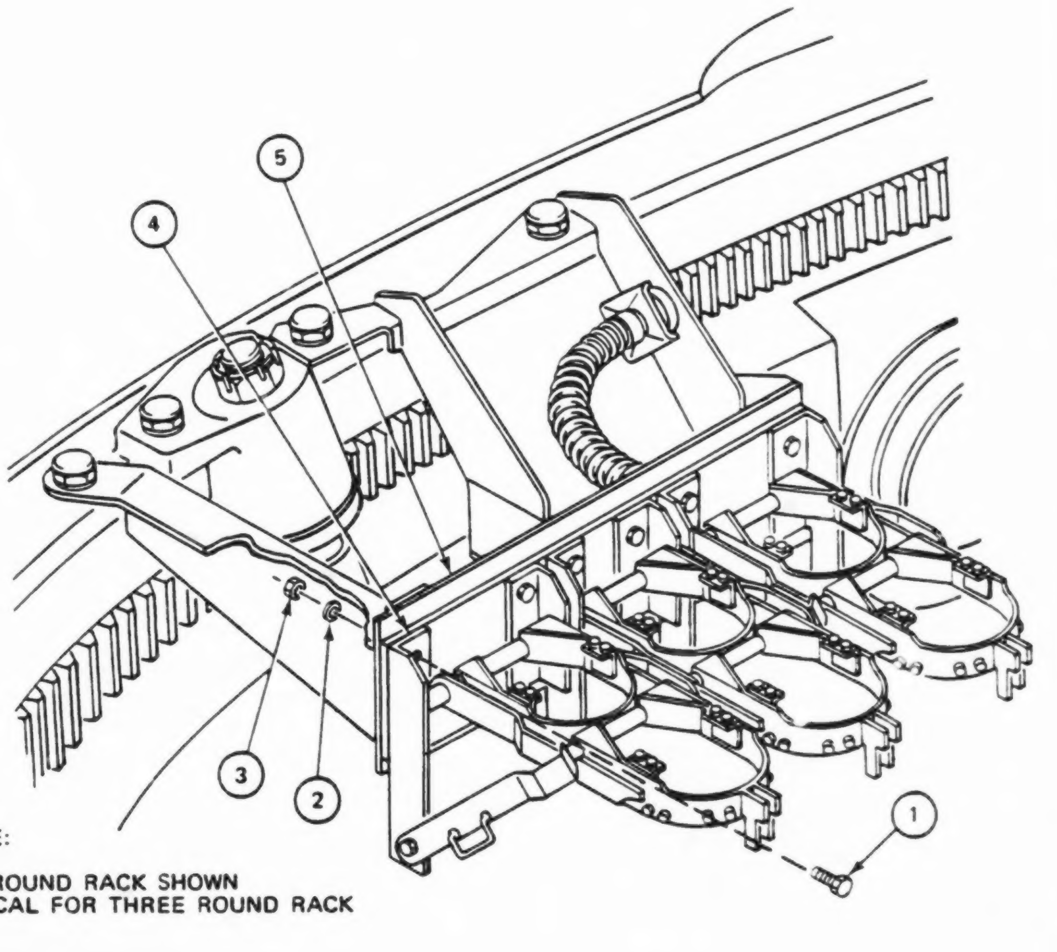
**NOTE**

This procedure is typical for removing ammunition retaining clamps for three or six round ammunition racks.

## 28-6. 165-MM AMMUNITION RETAINING CLAMPS REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket and combination wrenches, remove two screws (1), two lockwashers (2), and two nuts (3) that attach ammunition retaining clamps plate (4) to support (5). Remove plate.<br>END OF TASK |



NOTE:

SIX ROUND RACK SHOWN
TYPICAL FOR THREE ROUND RACK

## 28-7. 165-MM AMMUNITION RETAINING CLAMPS INSTALLATION PROCEDURE

TOOLS: 7/16" socket (1/2" drive)
1/2" drive ratchet
7/16" combination wrench

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-MM Six Round Ammunition Rack | FO-4 | 15 |
| 165-MM Three Round Ammunition Rack | FO-4 | 18 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

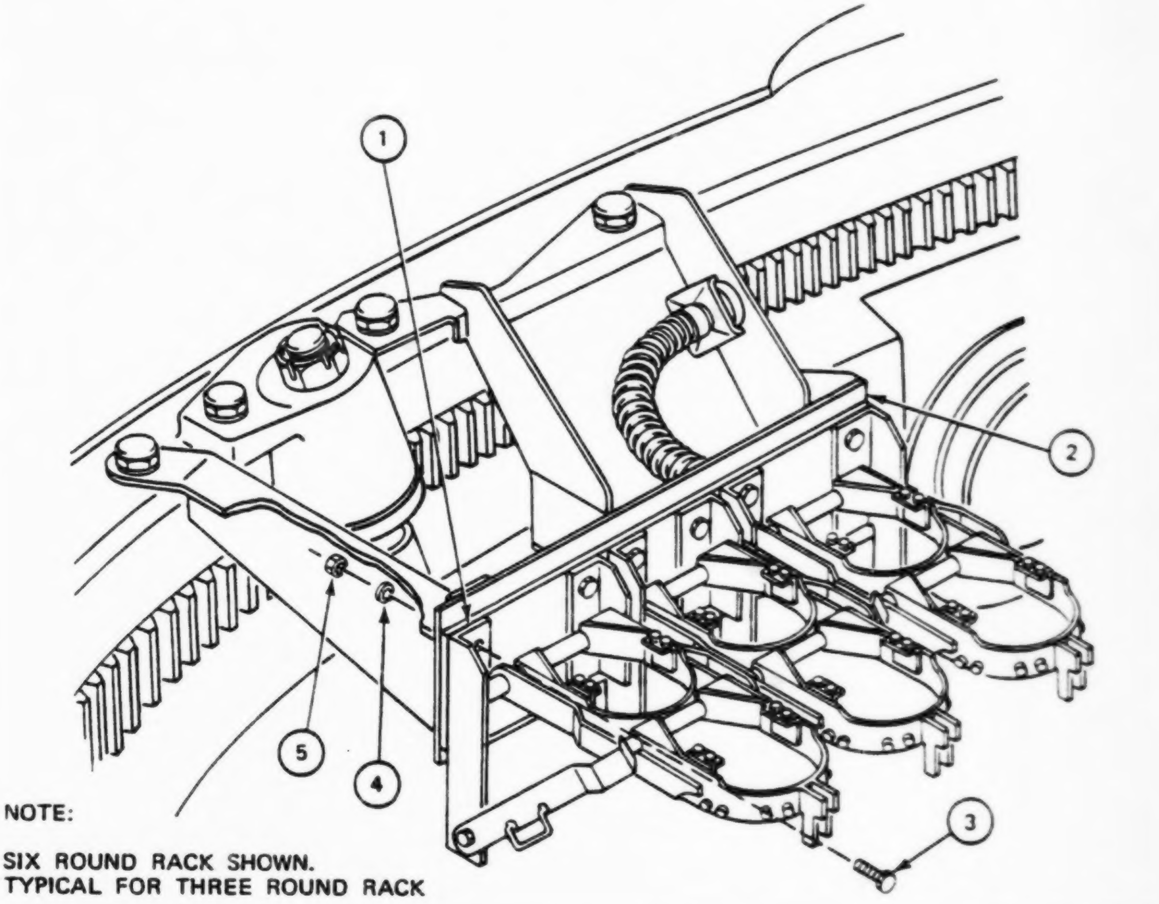
**NOTE**

This procedure is typical for installing ammunition retaining clamps for three or six round ammunition racks, either installed or removed from the vehicle.

## 28-7. 165-MM AMMUNITION RETAINING CLAMPS INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket and combination wrenches, attach ammunition retaining clamps plate (1) to support (2) with two screws (3), two lockwashers (4) and two nuts (5).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install six round or three round ammunition rack as applicable (para 28-3) or (para 28-5).<br>END OF TASK |



NOTE:

SIX ROUND RACK SHOWN.
TYPICAL FOR THREE ROUND RACK

# CHAPTER 29

# MACHINE GUN INTERRUPTER

## 29-1. MAINTENANCE PROCEDURES INDEX

|  | Tasks |  |
|---|---|---|
| Equipment Item | Removal | Installation |
| Machine Gun Interrupter Bar | 29-2 | 29-3 |

## 29-2. MACHINE GUN INTERRUPTER BAR REMOVAL PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
1/2" drive breaker bar

PERSONNEL: One

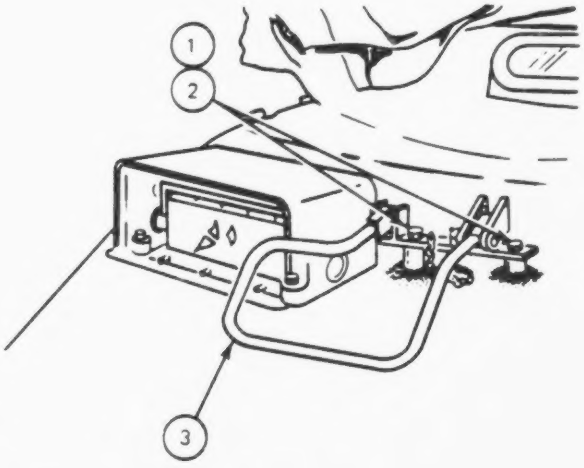
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, remove two bolts (1) and two lockwashers (2). |
| 2. | Remove machine gun interrupter bar (3). |
| | END OF TASK |



## 29-3. MACHINE GUN INTERRUPTER BAR INSTALLATION PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
Breaker bar (1/2" drive)

PERSONNEL: One

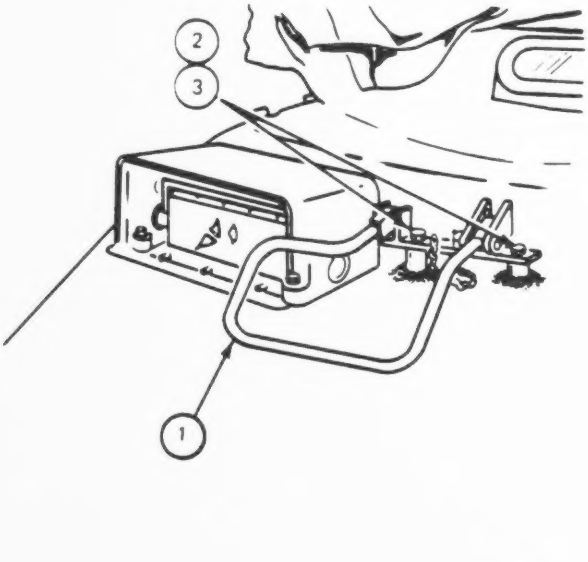
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, attach machine gun interrupter bar (1) to outside of turret with two bolts (2) and two lockwashers (3).<br>END OF TASK |

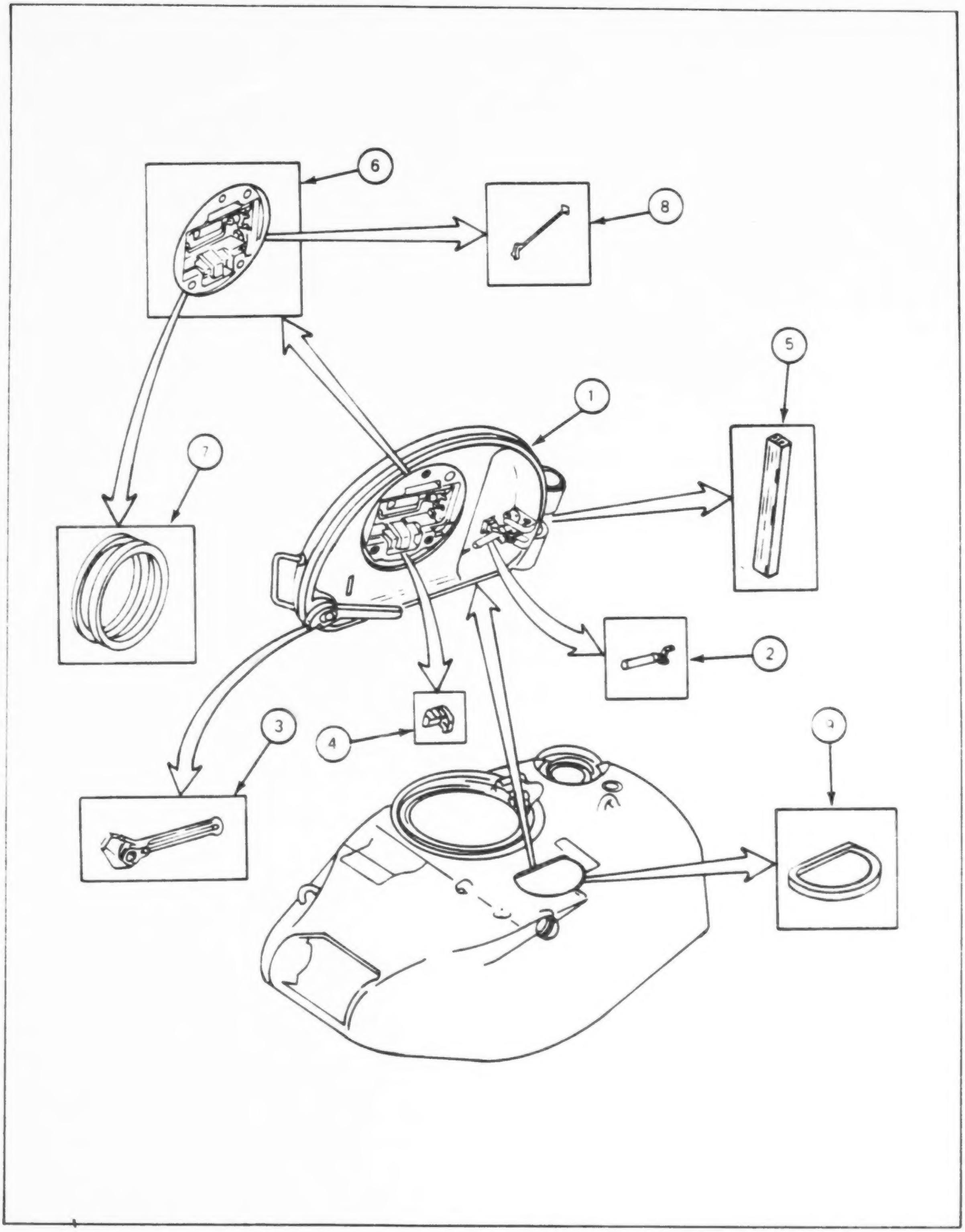


# CHAPTER 30

# LOADER'S ESCAPE HATCH

## 30-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation | Disassembly | Assembly |
|---|---|---|---|---|
| 1. Loader's Escape Hatch | 30-2 | 30-3 | . . . | . . . |
| 2. Hold-Open Mechanism | 30-4 | 30-5 | 30-6 | 30-7 |
| 3. Hold-Close Mechanism | 30-8 | 30-9 | . . . | . . . |
| 4. Retainer and Latch | 30-10 | 30-11 | . . . | . . . |
| 5. Spring | 30-2 | 30-3 | . . . | . . . |
| 6. Mount | 30-12 | 30-13 | . . . | . . . |
| 7. Seal and Bearing | 30-12 | 30-13 | . . . | . . . |
| 8. Latch | 30-14 | 30-15 | . . . | . . . |
| 9. Seal | 30-16 | 30-17 | . . . | . . . |



## 30-2. LOADER'S ESCAPE HATCH AND SPRING REMOVAL PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet
Hardwood dowel (2-3/8" diameter x 10" long)
2 lb. ball peen hammer
Diagonal cutting pliers

PERSONNEL: Two

REFERENCES: JPG for procedures to:
Mark parts
Remove lockwire

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURES: Remove turret antenna base cover (left rear) (para 2-53)

GENERAL INSTRUCTIONS:

**WARNING**

Handle hatch carefully. Hatch is heavy enough to hurt you if it drops or falls on you.

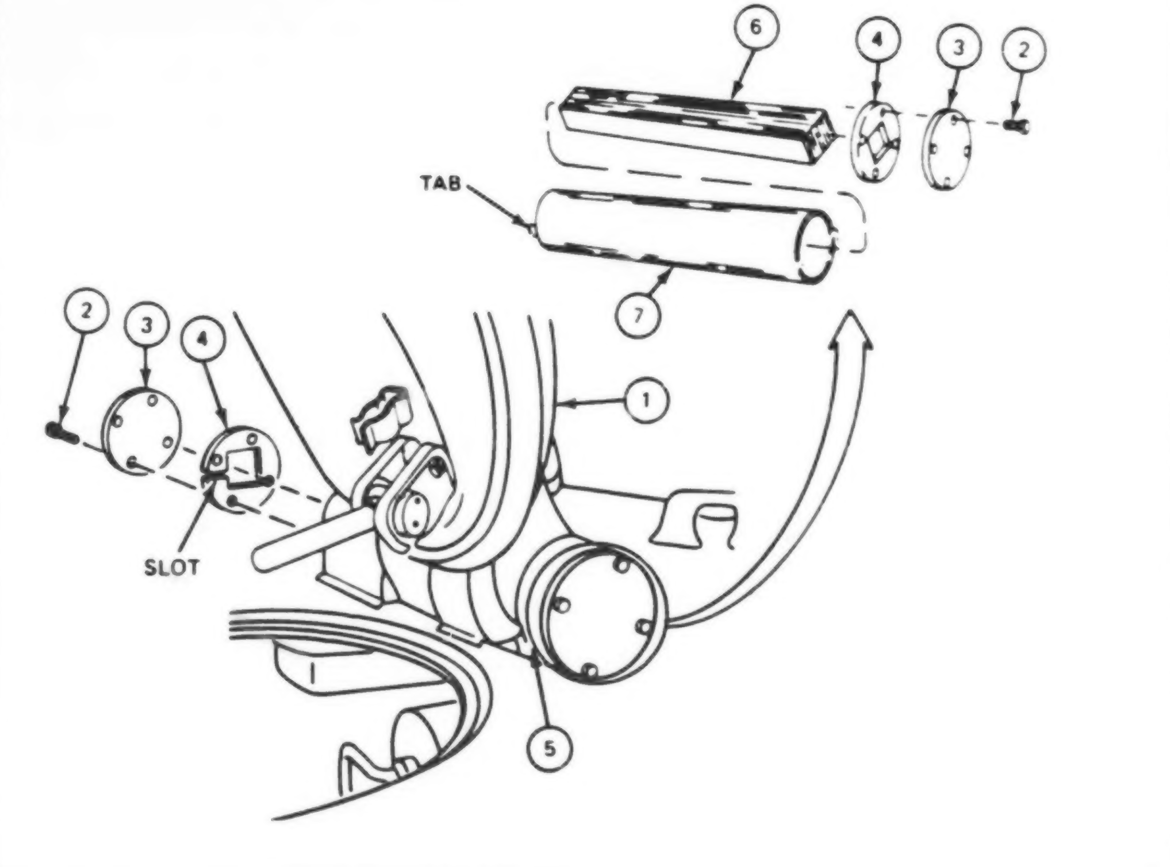
## 30-2. LOADER'S ESCAPE HATCH AND SPRING REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **WARNING**<br>Do not try to take off end caps unless hatch is in vertical position. End caps are under strong spring pressure when hatch is even part way closed. End caps could fly off and hurt you unless hatch is in vertical position. |
| 1. | Soldier A: Open hatch (1). Hold hatch in vertical position. |
| | **NOTE**<br>On some vehicles, eight screws (2) are held with lockwire. On other vehicles, lockwire is not used. If lockwire is used, do step 2. If lockwire is not used, go to step 3. |
| 2. | Soldier B: Using pliers, remove lockwire from eight screws (2) (JPG). |
| 3. | Using wrench, remove eight screws (2). |
| | **NOTE**<br>End caps (4) are different. Mark end caps (4) and hinge (5) to be sure end caps are put back on hinge the right way. |
| 4. | Remove two covers (3) and two end caps (4). |
| 5. | Mark end caps (4) and hinge (5) to show where each end cap belongs (JPG). |
| 6. | Remove spring (6) from tube (7). |
| | **WARNING**<br>Make sure soldier A is holding hatch so it does not fall when tube is removed. Hatch is heavy enough to hurt you if it falls on you. |

## 30-2. LOADER'S ESCAPE HATCH AND SPRING REMOVAL PROCEDURE (CONT)

| Step | Procedure |
|---|---|
| 7. | Soldier A: Hold hatch (1) so it does not fall, and lift slightly to take weight off tube. |
| | **NOTE**<br>Ends of tube (7) are different. One end has tabs. Mark tube (7) and hinge (5) to be sure tube is put back in hinge the right way. |
| 8. | Soldier B: Using hammer and dowel (if needed), drive tube (7) out of hinge (5). |
| 9. | Soldier B: Mark tube (7) and hinge (5) to show how tube (7) is put back in hinge (5) (JPG). |
| 10. | Soldier A and Soldier B: Remove hatch (1) from vehicle. |
| | END OF TASK |



## 30-3. LOADER'S ESCAPE HATCH AND SPRING INSTALLATION PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet
Hardwood dowel (2-3/8" diameter)
2 lb. ball peen hammer
3/8" drive torque wrench (0 to 50 foot-pounds)

SUPPLIES: Sealing compound (item 19, App. A)

PERSONNEL: Two

REFERENCES: JPG for procedures to use:
Sealing compound
Torque wrench
Install lockwire
LO 9-2350-222-12 for procedure to use lubricants

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

**WARNING**

Handle hatch carefully. Hatch is heavy enough to hurt you if it drops on you.

## 30-3. LOADER'S ESCAPE HATCH AND SPRING INSTALLATION PROCEDURE (CONT)

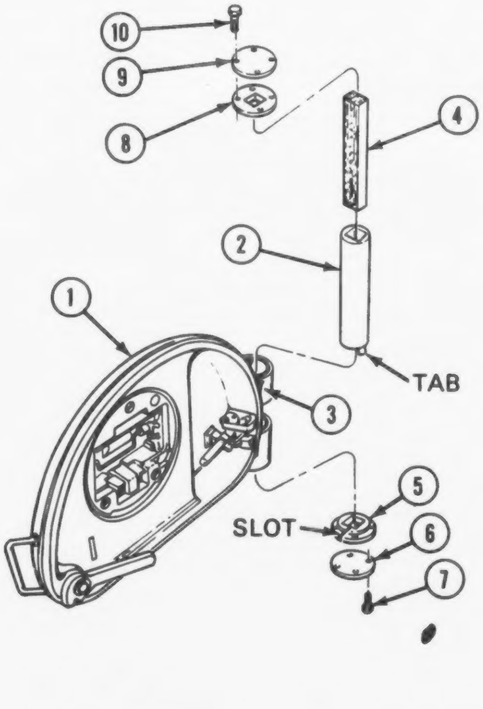
**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold hatch (1) in mounting position on vehicle. |
| | **NOTE**<br>Each end of tube is different. Tube should have markings that show the right way to put into hinge. Hammer and dowel should be used only on end of tube with no tabs. |
| 2. | Soldier B: Using dowel and hammer, drive tube (2) into hinge (3). |
| 3. | Lubricate springs (4) (LO). |
| 4. | Soldier A: Hold hatch (1) in vertical position. |
| 5. | Soldier B: Put springs (4) into tube (2). |
| | **NOTE**<br>End caps are different at each end of hinge. End caps should have markings that show the right way to put them back on hinge. |
| 6. | Put end cap (5) on spring (4) with slots in cap positioned vertically. Line up tabs on tube (2) with slots in cap (5). |
| 7. | Soldier A: Move hatch (1) as needed to line up screw holes in end cap (5) and cover (6). |
| | **NOTE**<br>Do step 8 if heads of screws (7) are not drilled for lockwire. If heads of screws are drilled omit step 8 and do step 9. |
| 8. | Put sealing compound on four screws (7). |
| 9. | Using socket wrench, attach end cap (5) and cover (6) to hatch hinge with four screws (7). |
| 10. | Repeat steps 7 through 9 to install end cap (8) and cover (9) with four screws (10). |

**Para 30-3 Cont**

## 30-3. LOADER'S ESCAPE HATCH AND SPRING INSTALLATION PROCEDURE (CONT)

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>**Do step 11 if heads of screws (7) and (10) are not drilled for lockwire. If heads of screws are drilled omit step 11 and do step 12.** |
| 11. | Using torque wrench, torque screws (7) and (10) to between 11 and 14 foot-pounds (JPG). |
| 12. | Using pliers, install lockwire between four screws (7) and four screws (10) (JPG). |
| | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install turret antenna base cover (left rear) (para 2-54).** |
| | **END OF TASK** |



## 30-4. HOLD-OPEN MECHANISM REMOVAL PROCEDURE

TOOLS:
- 1/2 in. socket (3/8 in. drive)
- 3/8 in. drive ratchet
- 3 in. extension (3/8 in. drive)
- Cross-tip screwdriver (Phillips) #2

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION:
Driver's master control panel MASTER BATTERY switch set to OFF
Loader's hatch fully opened

GENERAL INSTRUCTIONS:

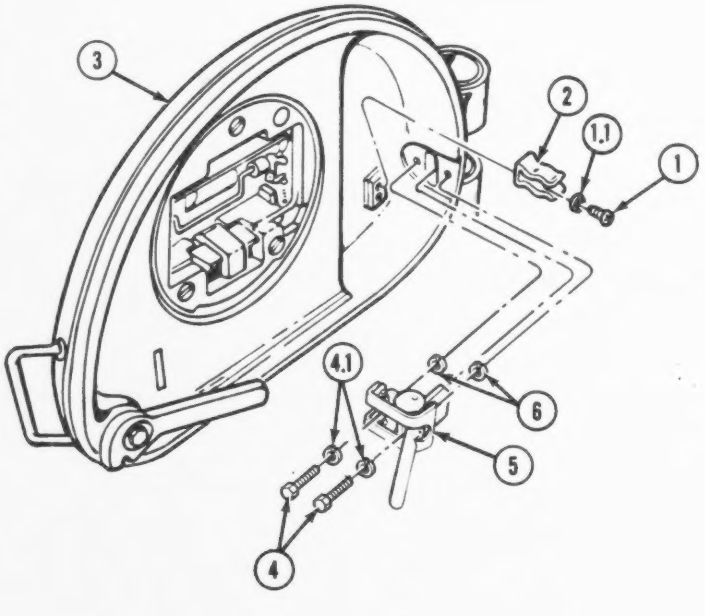
**NOTE**

**This procedure can also be done with loader's escape hatch removed from tank.**

## 30-4. HOLD-OPEN MECHANISM REMOVAL PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using screwdriver, remove two screws (1) and two lockwashers (1.1) that attach spring clip (2) to hatch (3). Remove spring clip (2). |
| 2. | Using socket wrench remove two screws (4) and two lockwashers (4.1) that attach hold-open mechanism (5) to cupola hatch (3). |
| 3. | Remove hold-open mechanism (5) and any shims (6) between hold-open mechanism (5) and hatch (3).<br>**END OF TASK** |



## 30-5. HOLD-OPEN MECHANISM INSTALLATION PROCEDURE

TOOLS:
1/2 in. socket (3/8 in. drive)
3 in. extension (3/8 in. drive)
3/8 in. drive ratchet
Cross tip screwdriver (Phillips) #2
Feeler gauge

SUPPLIES:
Sealing compound (Item 18, App. A)
Shim

PERSONNEL: One

REFERENCES: JPG for procedure to use:
Sealing compound
Feeler gauge

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

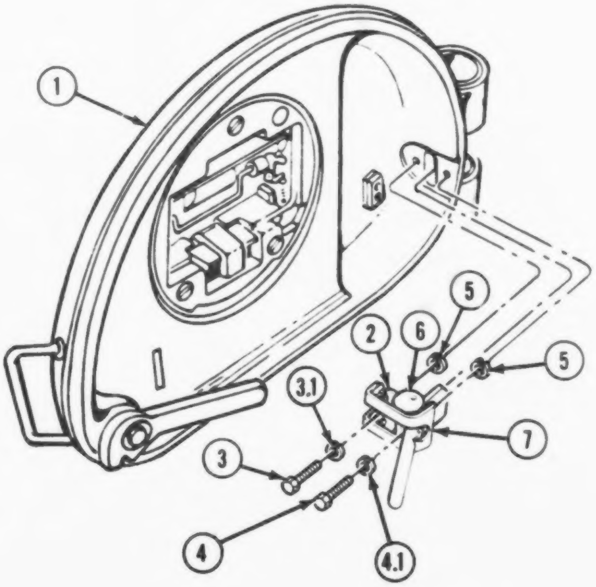
**NOTE**

**This procedure can also be done with loader's escape hatch removed from tank.**

## 30-5. HOLD-OPEN MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 1**

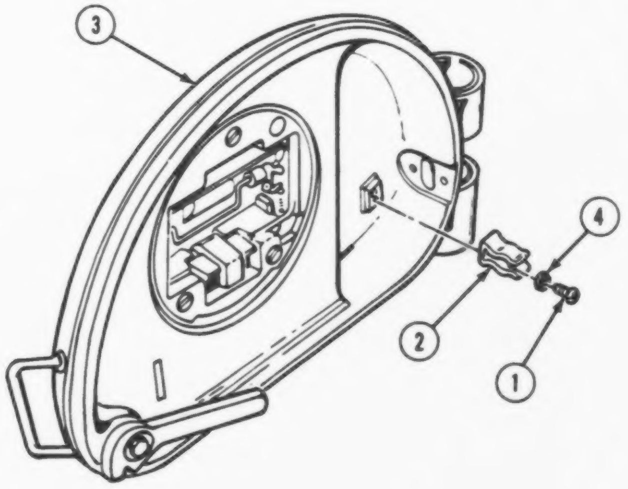
| STEP | PROCEDURE |
|---|---|
| 1. | Open hatch (1) about half way. |
| 2. | Line up hold-open mechanism (2) with mounting holes on hatch (1). |
| 3. | Put sealing compound on screw (3) and screw (4) (JPG). |
| 4. | Using socket wrench, install screw (3) lockwasher (3.1), and shims (5). |
| 5. | Using socket wrench, install screw (4), lockwasher (4.1) and shims (5). |
| 6. | Move hatch (1) to locked position. Check for smooth operation of hold-open mechanism (2). |
| 7. | Using feeler gauge, check gap between cam (6) and cover (7). Gap should be not more than 0.015 inch (JPG). If gap is more than 0.015 inch, shims (5) will have to be added or removed. Hold-open mechanism (2) should work easily without binding.<br>**GO TO FRAME 2** |



## 30-5. HOLD-OPEN MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Put sealing compound on screw (1) (JPG).<br>**NOTE**<br>**Center of clip opening must be lined up with lock handle of hold-open mechanism.** |
| 2. | Using screwdriver, attach spring clip (2) to hatch (3) with two screws (1) and two lockwashers (4). |
| 3. | Close hatch (3).<br>**END OF TASK** |



## 30-6. HOLD-OPEN MECHANISM DISASSEMBLY PROCEDURE

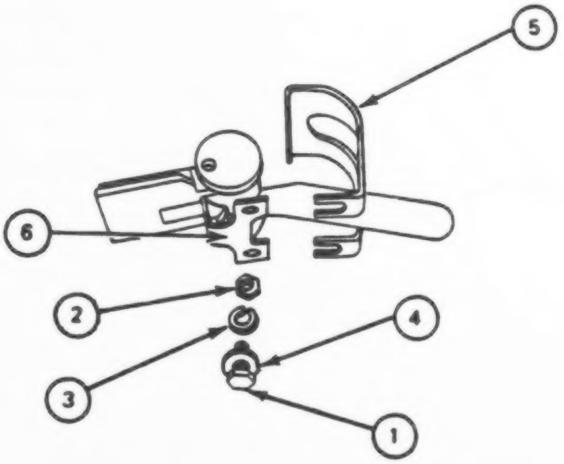
TOOLS: 1/2" socket (3/8" drive)
3/8" drive ratchet
1/2" open end wrench
3/32" drift pin punch
1/4" drift pin punch
8 oz. ball peen hammer

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove hold-open mechanism (para 30-4)

**FRAME 1**

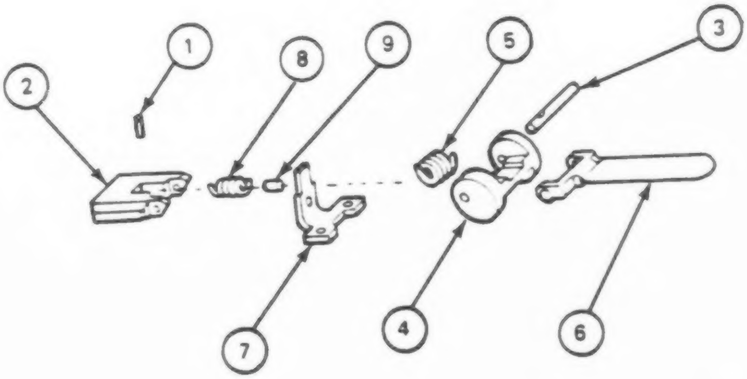
| Step | Procedure |
|---|---|
| 1. | Using socket wrench and open end wrench, remove two screws (1), two nuts (2), two flat washers (3), and two lockwashers (4). Remove cover (5) from support (6).<br>GO TO FRAME 2 |



## 30-6. HOLD-OPEN MECHANISM DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using hammer and 3/32" punch, drive pin (1) through dog (2).<br>**WARNING**<br>Spring can snap out and hurt you when pin is removed. |
| 2. | Using hammer and 1/4" punch, slowly drive pin (3) through cam (4). When pin (3) is removed, spring (5), handle (6), cam (4), support (7), spring (8), spacer (9), and dog (2) all come apart.<br>END OF TASK |



## 30-7. HOLD-OPEN MECHANISM ASSEMBLY PROCEDURE

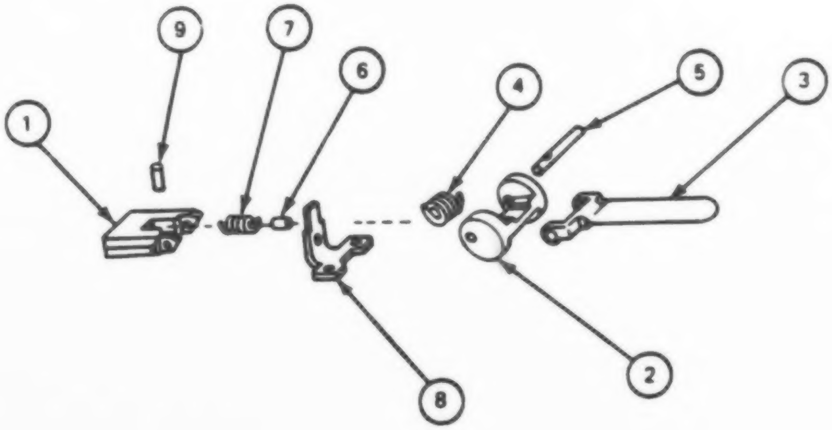
TOOLS: 1/2" socket (3/8" drive)
3/8" drive ratchet
1/2" open end wrench
8 oz. ball peen hammer

SUPPLIES: Oil (item 13, App. A)
Grease (item 11, App. A)

PERSONNEL: Two

**FRAME 1**

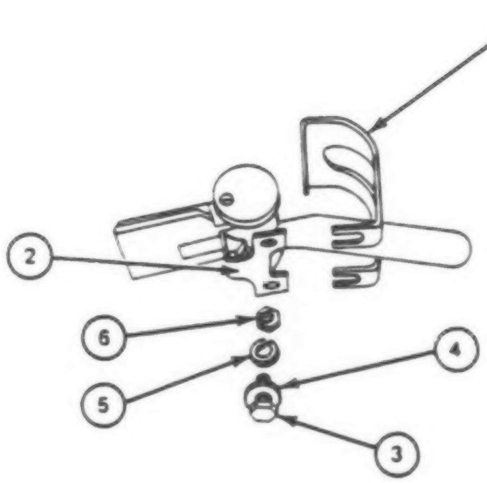
| Step | Procedure |
|---|---|
| 1. | Soldier A: Using oil or grease, put light coat of lubricant on all touching surfaces of dog (1). |
| 2. | Assemble dog (1), cam (2), and handle (3). Line up all holes. |
| 3. | Put spring (4) in hole in dog (1) with short end of spring (4) set in hole in dog (1) and long end of spring in hole on cam (2). Hold these parts together. |
| 4. | Soldier B: Put pin (5) into cam (2). |
| 5. | Put spacer (6), spring (7), and support (8) into slot in dog (1). |
| 6. | Using hammer, put pin (9) in dog (1). |
|  | GO TO FRAME 2 |



## 30-7. HOLD-OPEN MECHANISM ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench and open end wrench, attach cover (1) to support (2) with two screws (3), two lockwashers (4), two flat washers (5), and two nuts (6).<br>END OF TASK |



## 30-8. HOLD-CLOSE MECHANISM REMOVAL PROCEDURE

TOOLS: 3/4" socket (3/8" drive)
3/8" drive ratchet
1/8" drift pin punch
8 oz. ball peen hammer

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

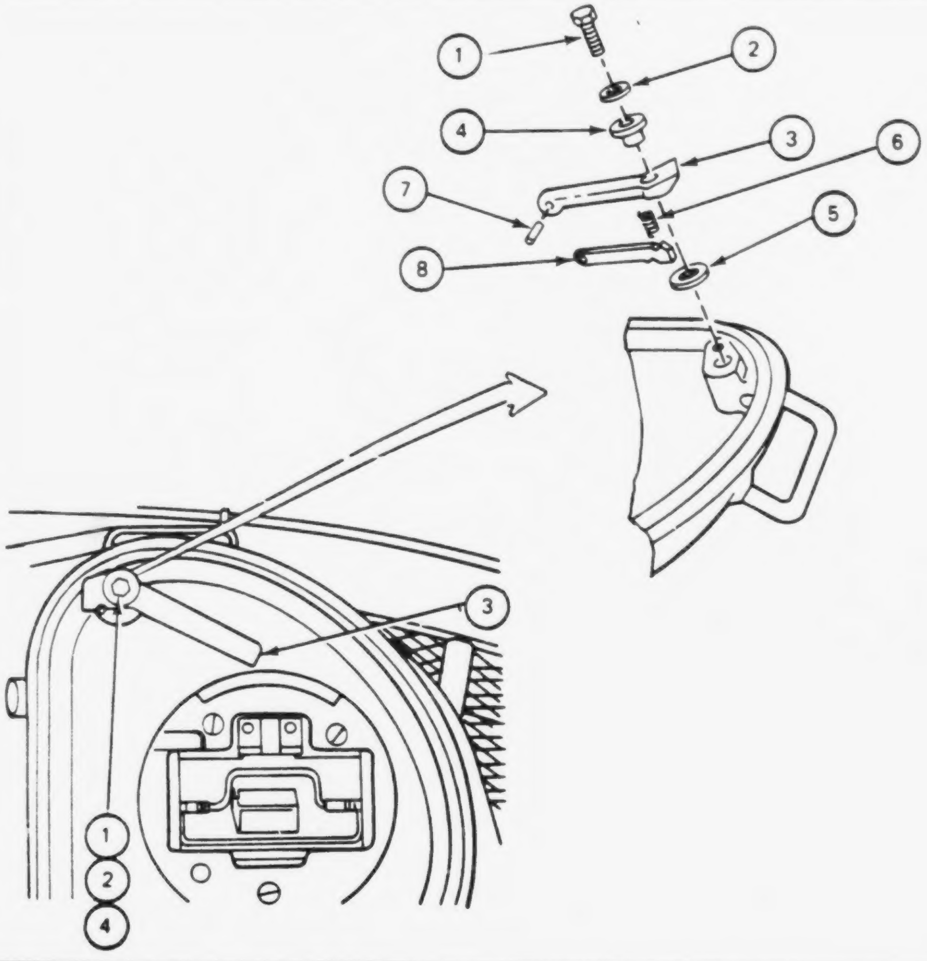
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Loader's escape hatch open

## 30-8. HOLD-CLOSE MECHANISM REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, remove screw (1) and washer (2).<br>**NOTE**<br>Count how many shims are removed. Same number should be put back during installation. |
| 2. | Remove handle (3), bushing (4), shims (5) and spring (6). |
| 3. | Using hammer and punch, tap pin (7) through handle (3) and remove release handle (8). |
|  | END OF TASK |



## 30-9. HOLD-CLOSE MECHANISM INSTALLATION PROCEDURE

TOOLS: 3/4" socket (3/8" drive)
3/8" drive ratchet
3/8" drive torque wrench (0 to 50 foot-pounds)
8 oz. ball peen hammer

SUPPLIES: Sealing compound (item 18, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to use:
Sealing compound
Torque wrench

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Loader's escape hatch open

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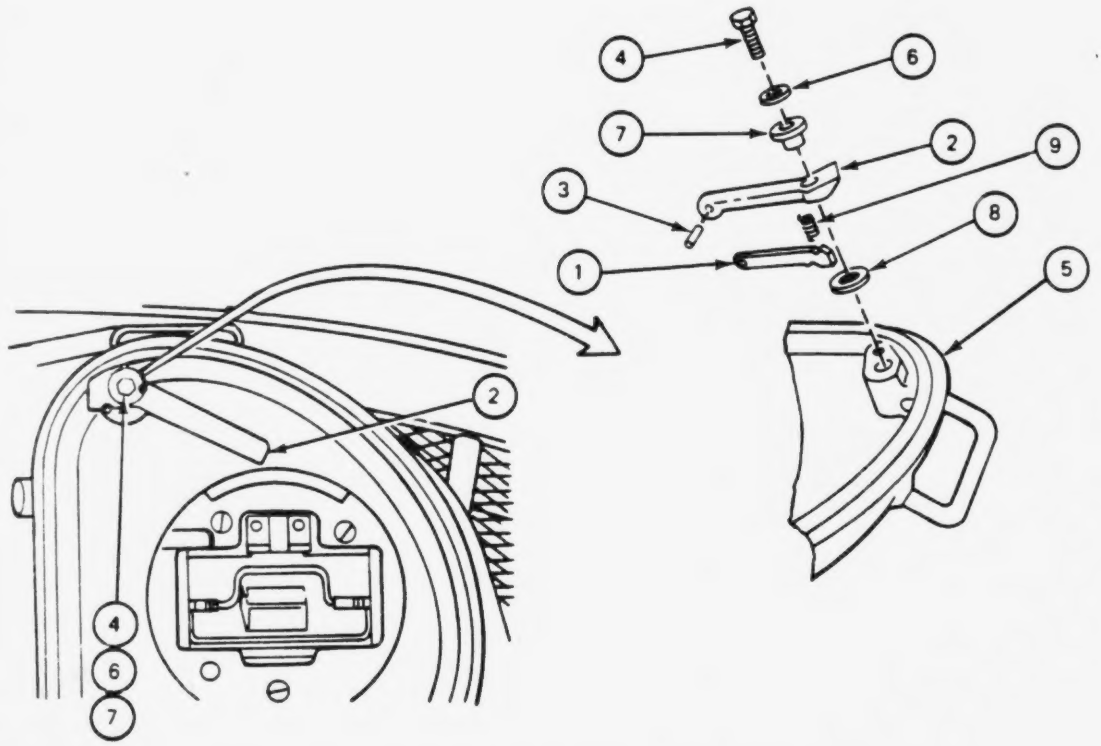
## 30-9. HOLD-CLOSE MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using hammer, attach release handle (1) to handle (2) with spring pin (3). |
| | **NOTE**<br>Use as many shims as needed to be sure hatch locks when closed. |
| 2. | Put sealing compound on screw (4) (JPG). |
| 3. | Using wrench, attach handle (2) to hatch (5) with screw (4), washer (6), bushing (7), shims (8), and spring (9). |
| 4. | Squeeze release handle (1) and turn handle (2). Check to make sure hatch (5) locks and unlocks easily. |
| 5. | Using torque wrench, tighten screw (4) to between 9 and 11 foot-pounds (JPG). |
| | END OF TASK |



## 30-10. RETAINER AND LATCH REMOVAL PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Loader's escape hatch open

GENERAL INSTRUCTIONS:

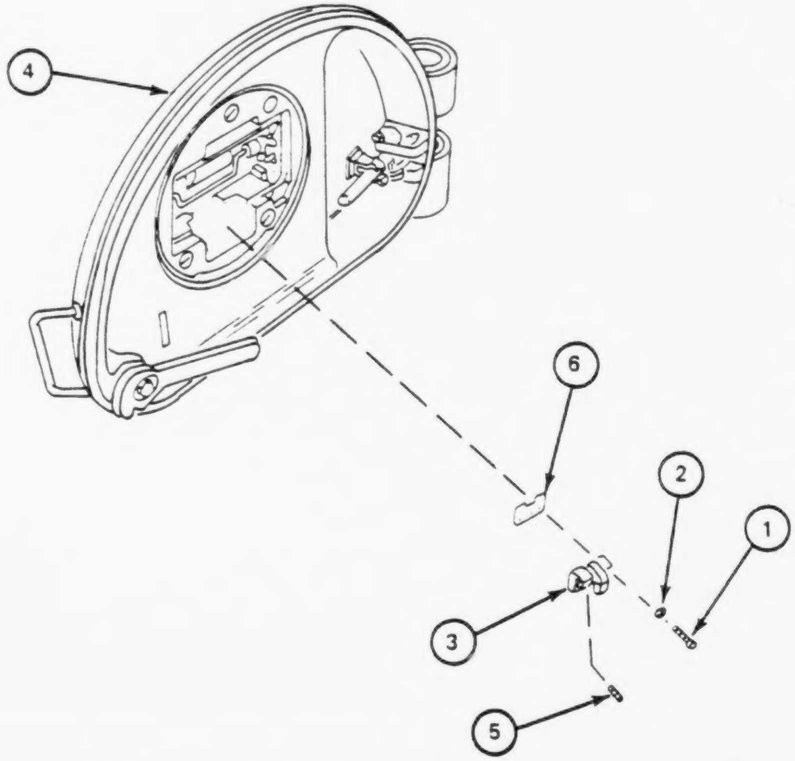
**NOTE**

This procedure can also be done with loader's escape hatch removed from tank or periscope mount removed from loader's escape hatch.

## 30-10. RETAINER AND LATCH REMOVAL PROCEDURE (CONT)

FRAME 1

| Step | Procedure |
|---|---|
| | **NOTE**<br>Be careful when removing retainer and latch. Do not lose spring. |
| 1. | Using wrench, remove two screws (1) and two lockwashers (2) from hatch (4). |
| | **NOTE**<br>Count how many shims are removed. Same number should be put back during installation. |
| 2. | Carefully remove retainer and latch (3), spring (5), and all shims (6).<br>END OF TASK |



## 30-11. RETAINER AND LATCH INSTALLATION PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

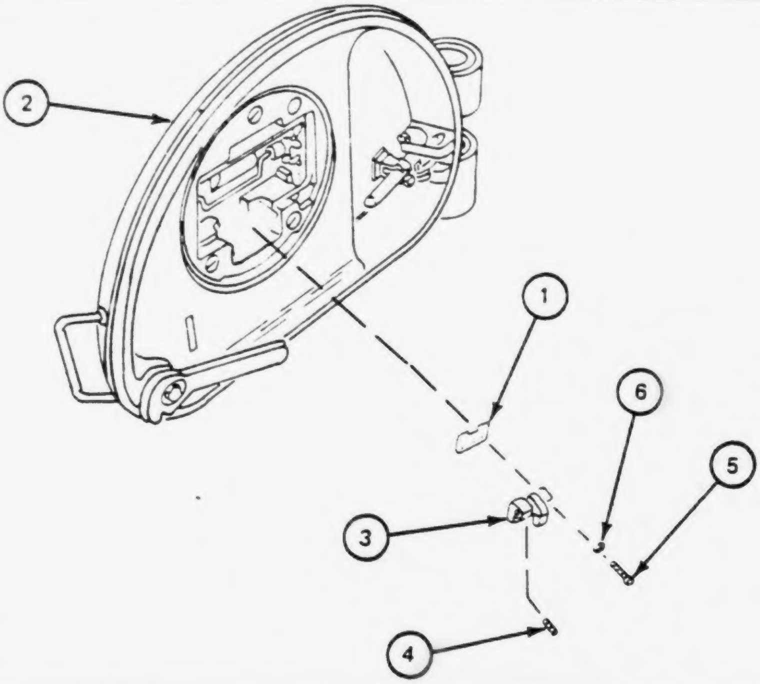
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put all shims (1) in place on hatch (2). |
| 2. | Using socket wrench, attach retainer and latch (3) and spring (4) to hatch (2) with two screws (5) and two lockwashers (6). |
| 3. | Check operation of retainer and latch (3). If it does not operate properly, put in more shims (1) or take out shims (1) as needed.<br>END OF TASK |



## 30-12. MOUNT, SEAL, AND BEARING REMOVAL PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Loader's hatch open

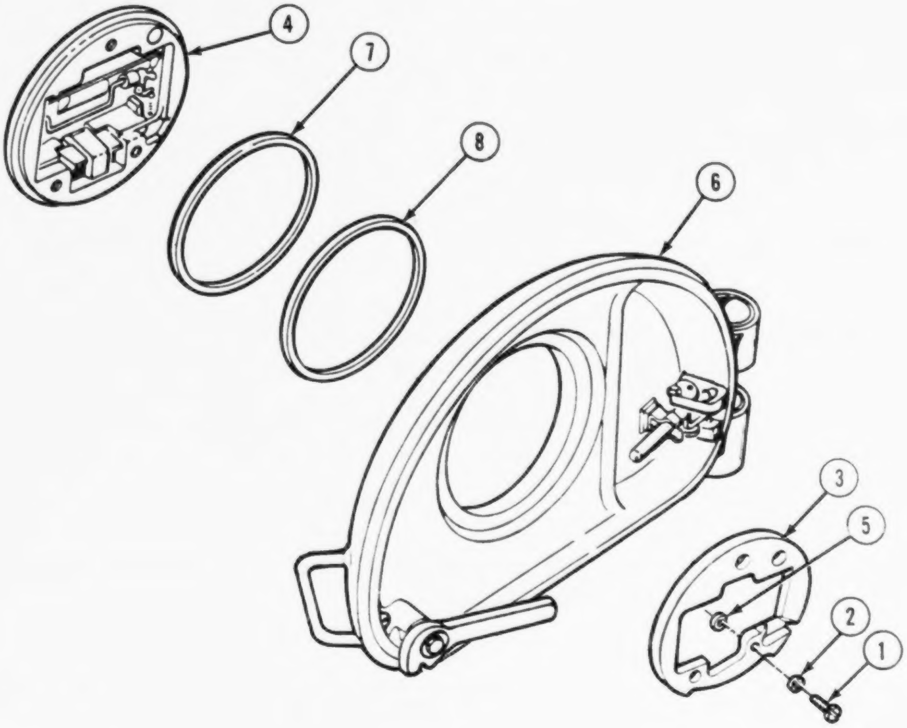
GENERAL INSTRUCTIONS:

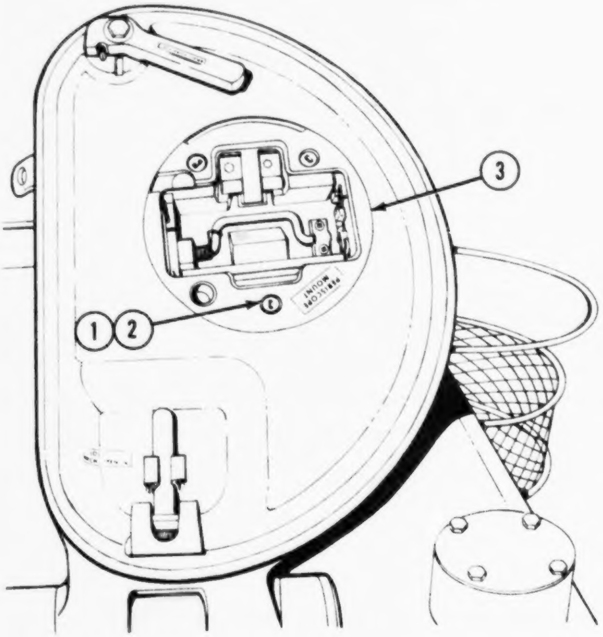
**NOTE**

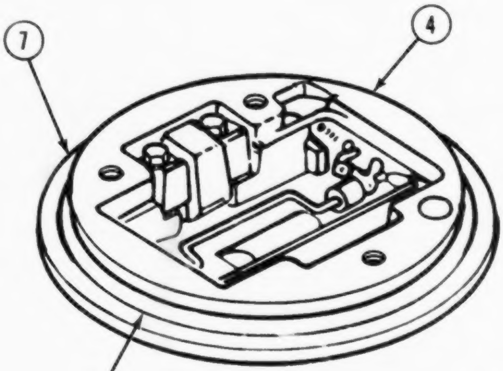
This procedure can also be done with loader's escape hatch removed from tank.

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Shims are between plate and mount. Count shims taken out at each of three mounting holes. Same number of shims should be put back during installation. |
| 1. | Using screwdriver, remove three screws (1) and three lockwashers (2). Remove plate (3) from mount (4). Remove shims (5). |
| 2. | Remove mount (4) from hatch (6). |
| 3. | Remove bearing (7). |
| 4. | Remove seal (8). |
| | END OF TASK |




PERISCOPE MOUNT



## 30-13. MOUNT, SEAL, AND BEARING INSTALLATION PROCEDURE

TOOLS: Cross-tip screwdriver (Phillips)

SUPPLIES: Adhesive (Item 3, App. A)
Sealing compound (Item 18.1 App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to use adhesives
LO 9-2350-222-12 for procedure to lubricate mount

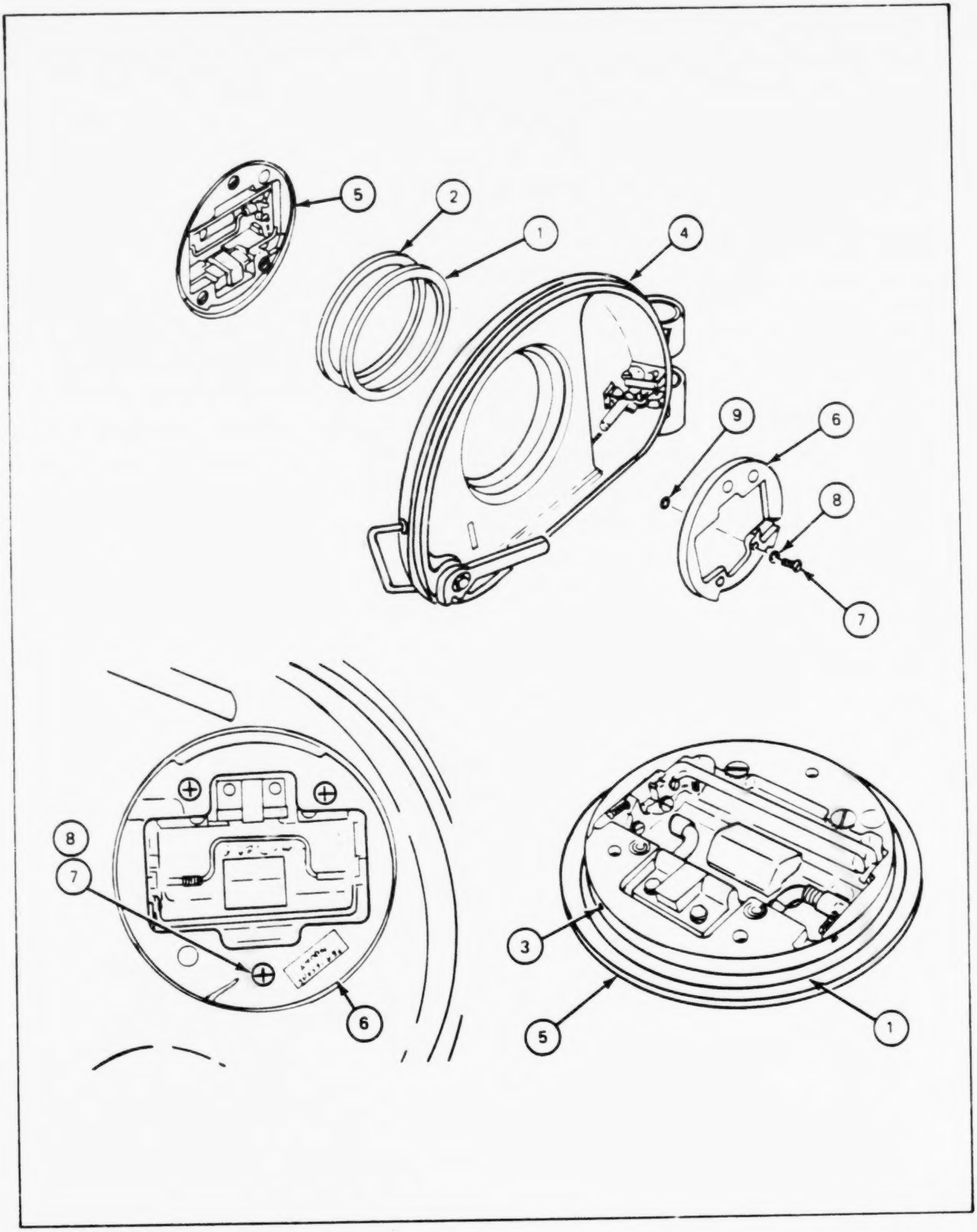
GENERAL INSTRUCTIONS:

**NOTE**

**This procedure can also be done with loader's escape hatch removed from tank.**

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using adhesive, put on seal (1) (JPG). |
| 2. | Put on bearing (2). |
| 3. | Line up spring-loaded pin (3) with groove in hatch (4). |
| 4. | Put sealing compound on threads of screws (7). |
| 5. | Put mount (5) in hatch (4). |
|  | **NOTE**<br>**Make sure the same number of shims are put back as were taken out during removal.** |
| 6. | Using screwdriver, attach plate (6) to mount (5) with three screws (7), three lockwashers (8), and shims (9). |
| 7. | Make sure mount (5) turns easily. If not, do steps 1 thru 5 again. |
| 8. | Lubricate assembly (LO). |
|  | **END OF TASK** |



## 30-14. LATCH REMOVAL PROCEDURE

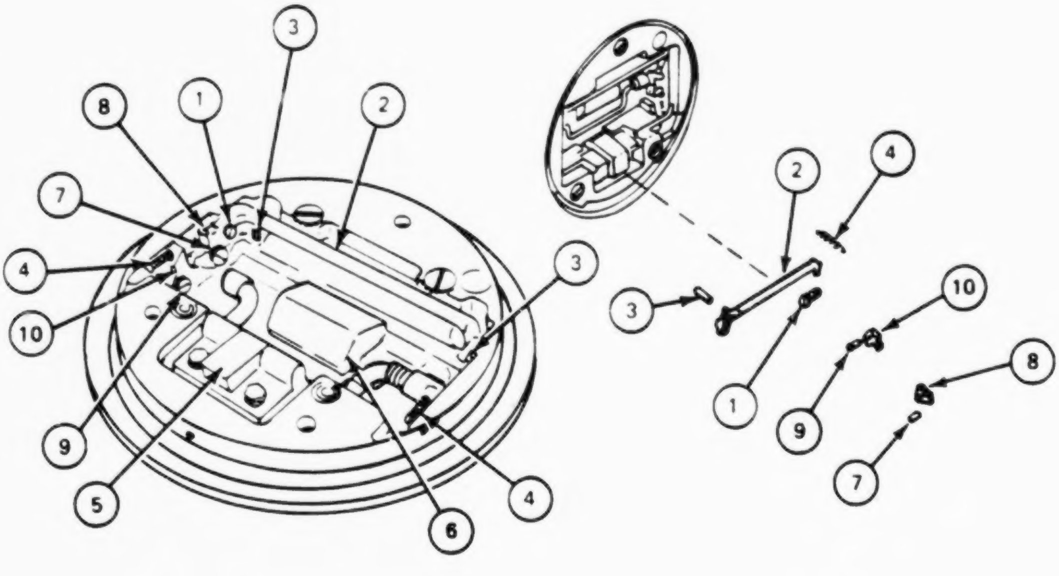
TOOLS: Flat tip screwdriver
Needle nose pliers

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove mount (para 30-12, steps 1 and 2)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove two screws (1). Carefully remove latch (2) and two springs (3). |
| 2. | Using pliers, remove two springs (4). |
| 3. | Push latch (5) and open periscope door (6). |
| 4. | Using screwdriver, remove two screws (7) and two retainers (8). |
| 5. | Using screwdriver, remove two screws (9) and two retainers (10). |
| | END OF TASK |



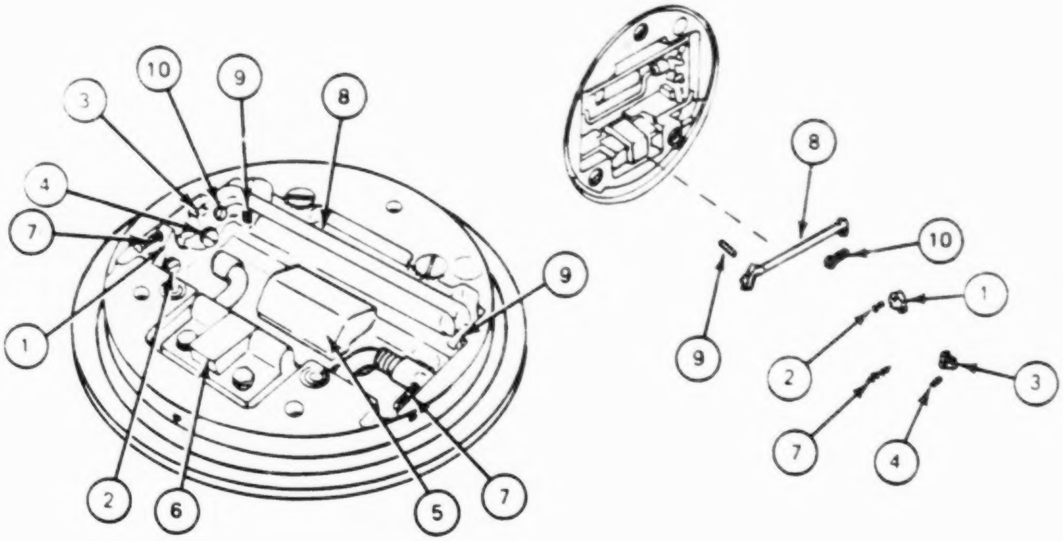
## 30-15. LATCH INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver
Needle nose pliers

PERSONNEL: One

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, attach two retainers (1) with two screws (2). |
| 2. | Using screwdriver, attach two retainers (3) with two screws (4). |
| 3. | Close periscope door (5) and pull latch (6). |
| 4. | Using pliers, attach two springs (7). |
| 5. | Using screwdriver, attach latch (8) and two springs (9) with two screws (10). |
|  | END OF TASK |



## 30-16. SEAL REMOVAL PROCEDURE

TOOLS: Putty knife
Flat tip screwdriver

PERSONNEL: One

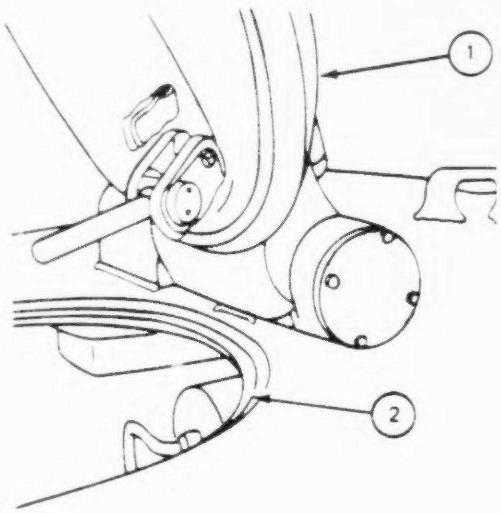
EQUIPMENT LOCATION INFORMATION:

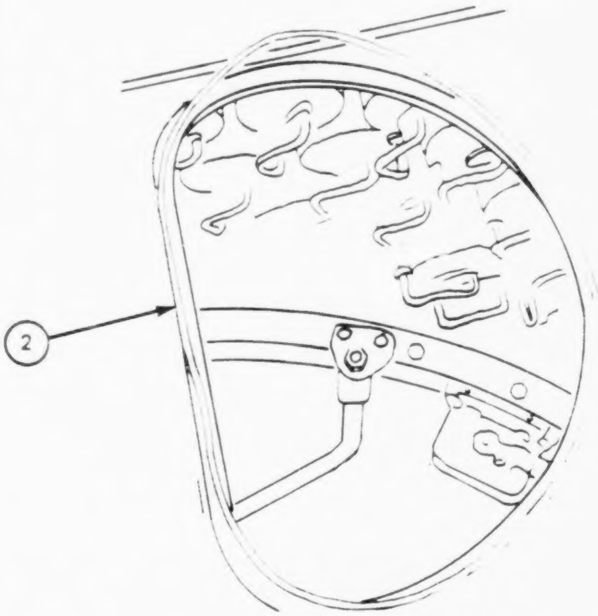
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open hatch (1). |
| 2. | Using putty knife and screwdriver, pry out seal (2) from rim of hatch (1). |
|  | END OF TASK |





## 30-17. SEAL INSTALLATION PROCEDURE

**SUPPLIES:** Adhesive (Item 3.1, App. A)

**PERSONNEL:** One

**REFERENCES:** JPG for procedures to:
Clean parts
Use adhesives

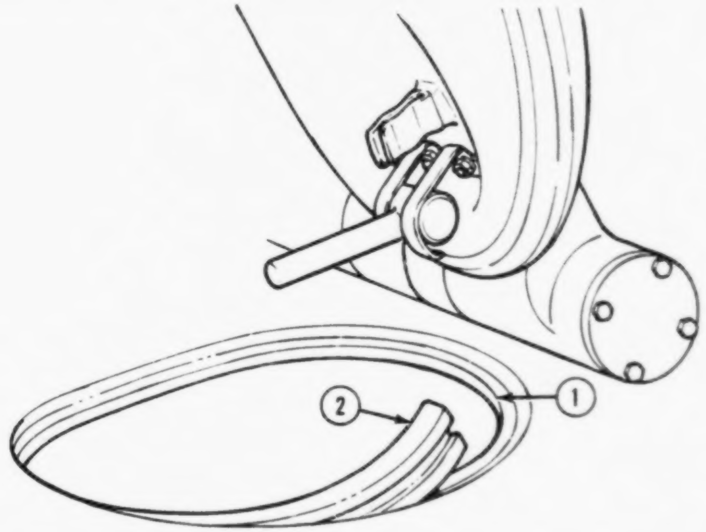
**EQUIPMENT LOCATION INFORMATION:**

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Escape Hatch | FO-5 | 5 |

**EQUIPMENT CONDITION:** Driver's master control panel MASTER BATTERY switch set to OFF
Loader's hatch open

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Clean seal groove (1) (JPG). |
| 2. | Using adhesive, put seal (2) in seal groove (1) (JPG). |
| | **END OF TASK** |

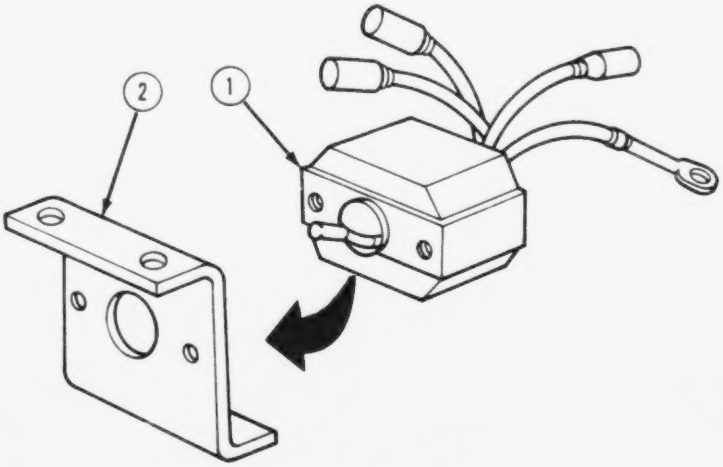


# CHAPTER 31

# LOADER'S SAFETY SWITCH (EARLY MODEL)

## 31-1. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks | |
|---|---|---|
| | Removal | Installation |
| 1. Loader's Safety Switch | 31-2 | 31-3 |
| 2. Mounting Plate | 31-2 | 31-3 |



## 31-2. LOADER'S SAFETY SWITCH AND MOUNTING PLATE REMOVAL PROCEDURE (EARLY MODEL)

TOOLS: 7/16 in. open end wrench
Cross tip screwdriver (Phillips)

PERSONNEL: One

REFERENCE: JPG for procedure to tag and disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-mm Gun | FO-4 | 6 |
| Gunner's Control Box | FO-1 | 2 |
| Turret Traverse Lock | FO-3 | 7 |

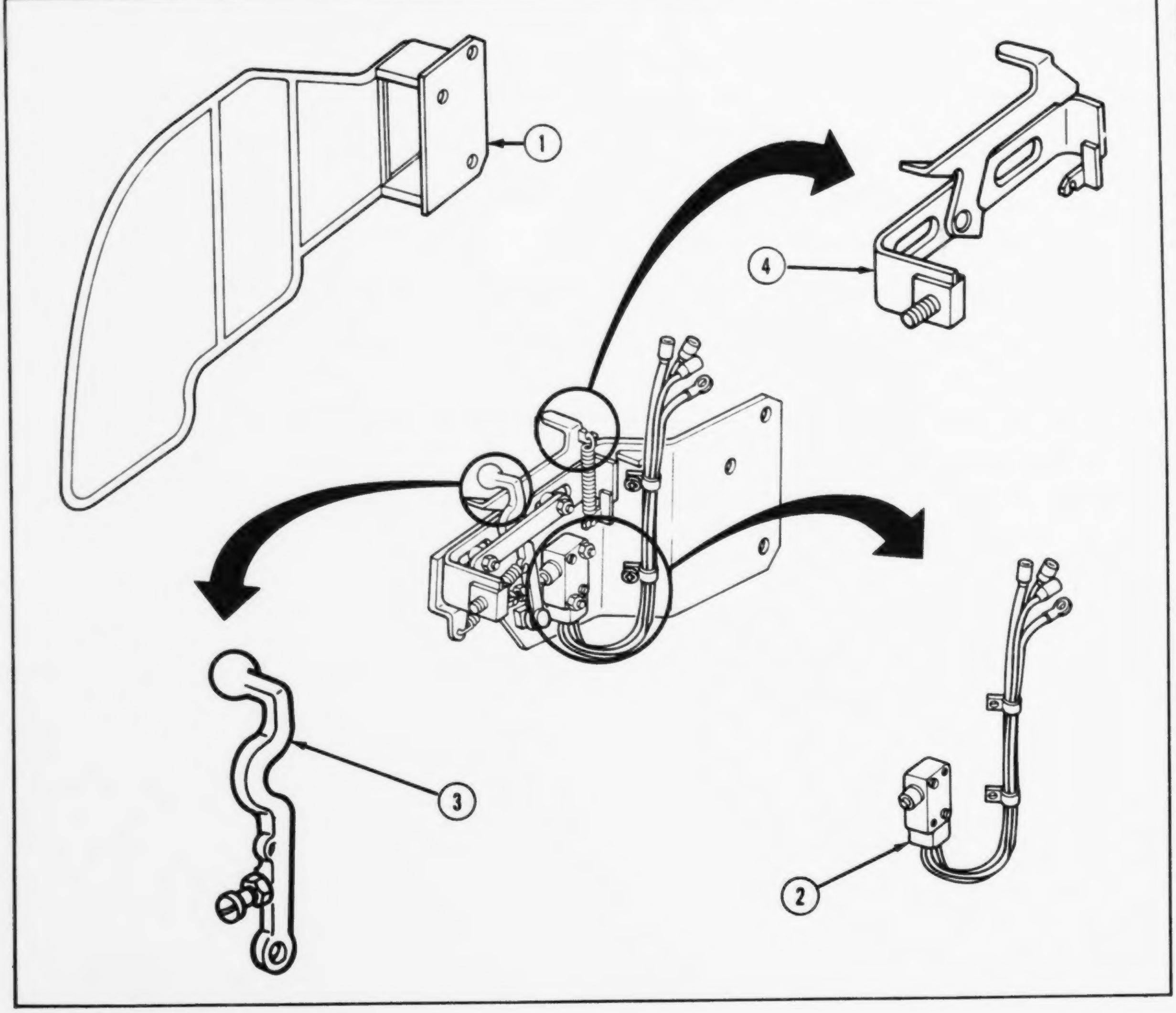
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Gunner's control box MAIN GUN switch set to OFF
Turret traverse lock set to LOCKED

# CHAPTER 31.1

## LOADER'S SAFETY SWITCH ASSEMBLY AND GUARD (LATE MODEL)

### 31.1-1 MAINTENANCE PROCEDURES INDEX

| | | Tasks | | |
|---|---|---|---|---|
| | **Equipment Item** | **Removal** | **Installation** | **Adjustment** |
| 1. | Loader's Safety Switch Assembly & Guard | 31.1-2 | 31.1-3 | 31.1-10 |
| 2. | Switch | 31.1-4 | 31.1-5 | |
| 3. | Lever | 31.1-6 | 31.1-7 | |
| 4. | Slide | 31.1-8 | 31.1-9 | |



## 31.1-2 LOADER'S SAFETY SWITCH ASSEMBLY AND GUARD REMOVAL PROCEDURE

TOOLS: 3/4 in. socket (1/2 in. drive)
1/2 in. drive ratchet
7/16 in. combination box and open end wrench

PERSONNEL: One

REFERENCE: JPG for procedure to disconnect electrical connectors

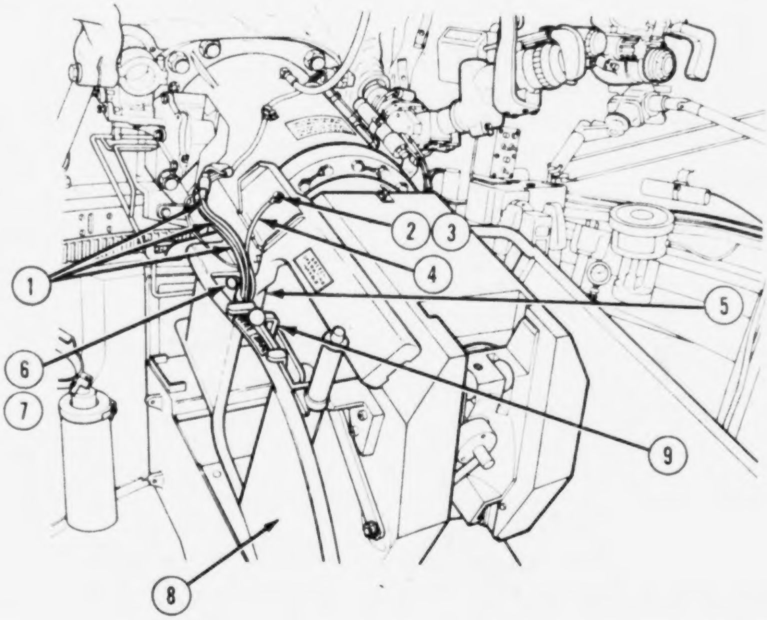
EQUIPMENT LOCATION INFORMATION:

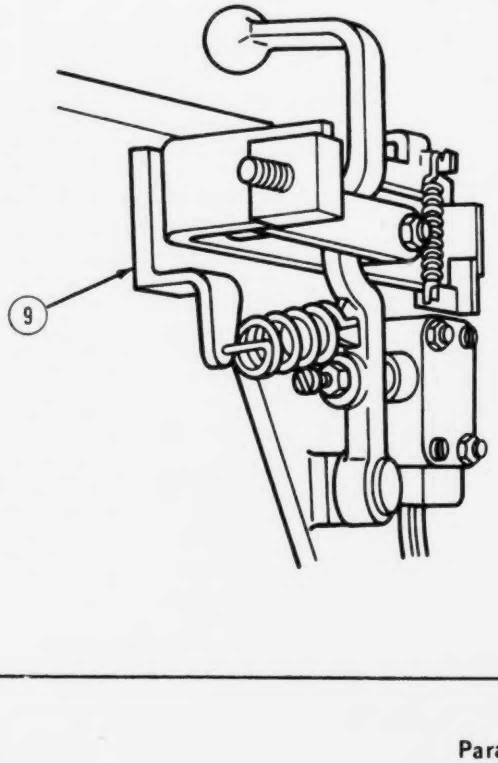
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| 165-mm Gun | FO-4 | 6 |
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Disconnect three electrical connectors (1) (JPG). |
| 2. | Using wrench, remove screw (2), two lockwashers (3) securing ground lead (4) to gun mount (5). |
| 3. | Using socket, remove three screws (6), three lockwashers (7) securing loader's guard (8), and loader's safety switch (9) to gun mount (5). |
| 4. | Remove loader's guard (8) and loader's safety switch assembly (9) from gun mount (5). |
| | **END OF TASK** |




9

## 31.1-3 LOADER'S SAFETY SWITCH ASSEMBLY AND GUARD INSTALLATION PROCEDURE

TOOLS:
3/4 in. socket (1/2 in. drive)
1/2 in. drive ratchet
7/16 in. open end wrench

PERSONNEL: One

REFERENCES:
JPG for procedure to connect electrical connectors
TM 9-2350-222-10 for procedure to do firing circuit test

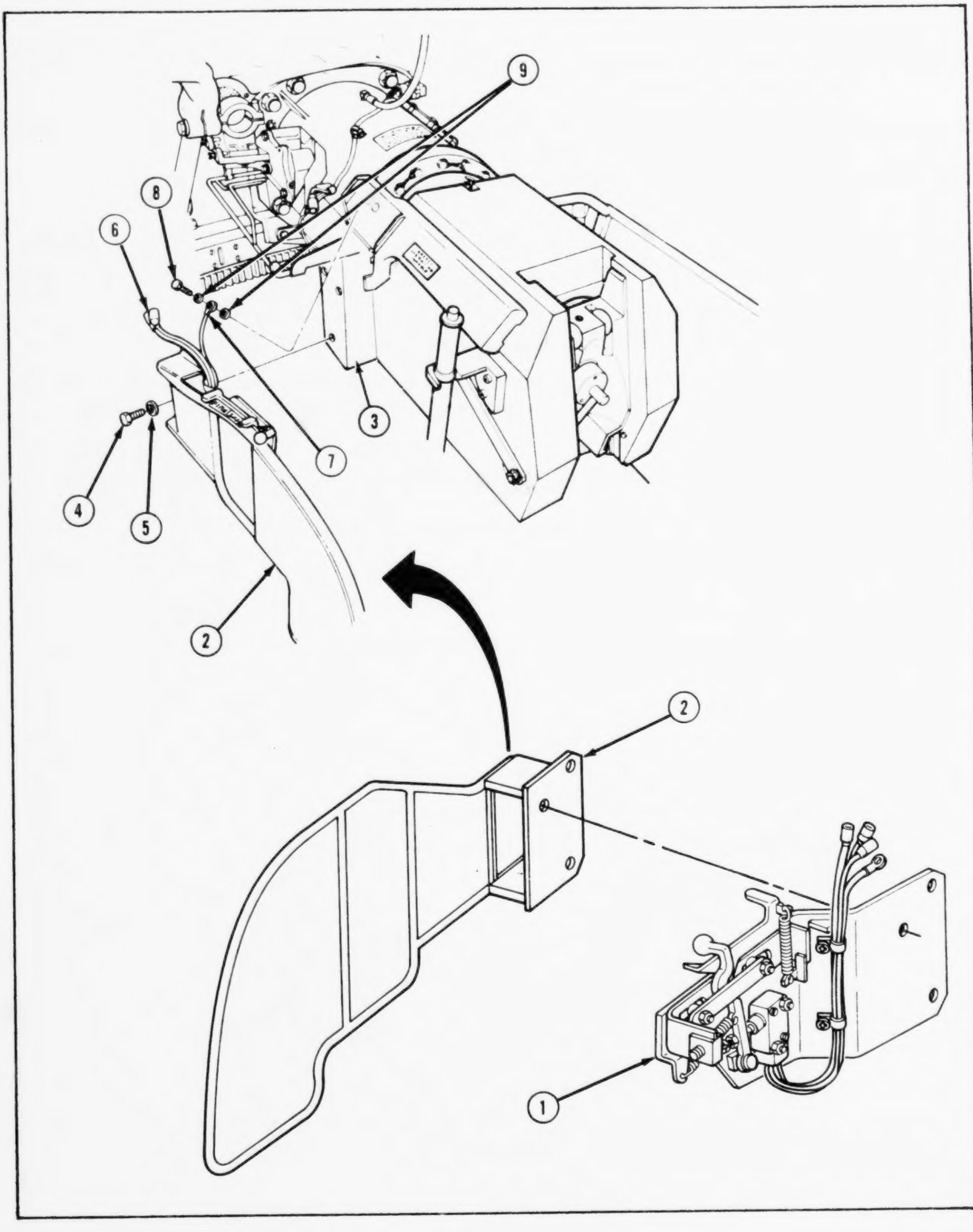
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| 165-mm Gun | FO-4 | 6 |
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Line up mounting holes in plate (1) and loader's guard (2) with mounting holes in gun mount (3). |
| 2. | Using socket, attach plate (1) and loader's guard (2) to gun mount (3) with three screws (4) and three lockwashers (5). |
| 3. | Connect three electrical connectors (6) (JPG). |
| 4. | Using wrench, attach ground strap (7) to gun mount (3) with screw (8), and two lockwashers (9).<br>**NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Test firing circuit (TM-10).**<br>**END OF TASK** |



## 31.1-4 SWITCH REMOVAL PROCEDURE

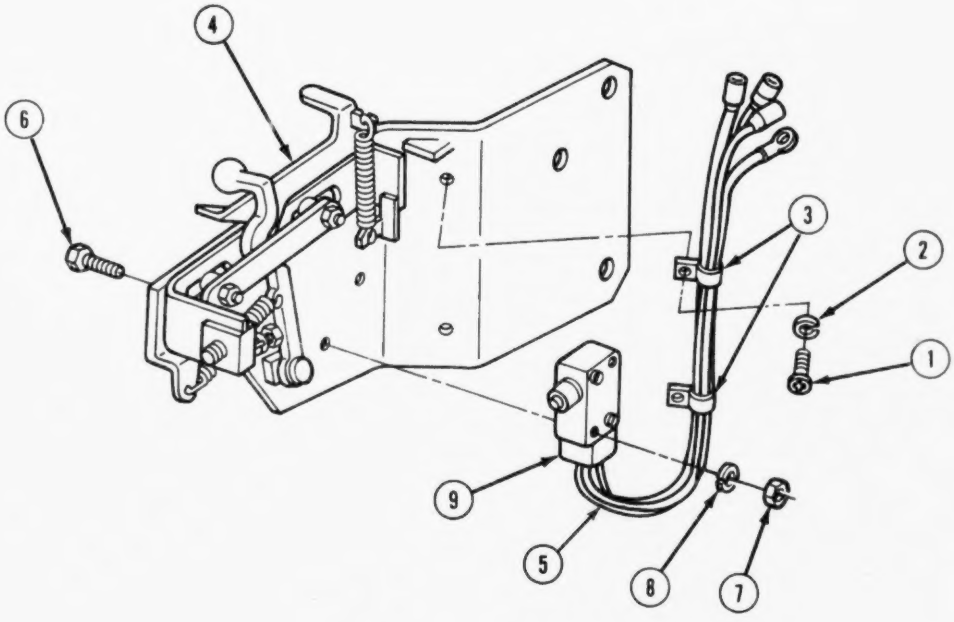
TOOLS: Cross tip screwdriver (Phillips)
11/32 in. box end wrench

PERSONNEL: One

PRELIMINARY PROCEDURE: Remove loader's safety switch assembly and guard Para 31.1-2

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using screwdriver, remove two screws (1) and two lockwashers (2) that attach two clamps (3) to plate (4). Remove two clamps (3) from switch lead (5). |
| 2. | Using screwdriver and wrench, remove two screws (6), two nuts (7), two lockwashers (8), and switch (9) from plate (4).<br>**END OF TASK** |



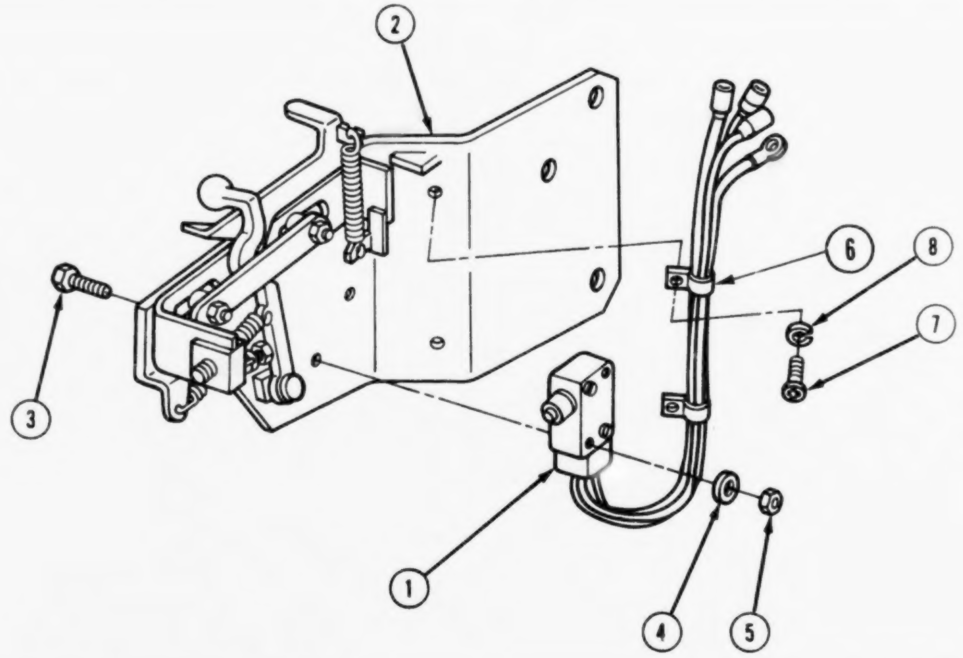
## 31.1-5 SWITCH INSTALLATION PROCEDURE

TOOLS: Cross tip screwdriver (Phillips)
11/32 in. box end wrench

PERSONNEL: One

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Line up mounting holes in switch (1) with mounting holes in plate (2). |
| 2. | Using screwdriver and wrench, attach switch (1) to plate (2) with two screws (3), two lockwashers (4), and two nuts (5). |
| 3. | Using screwdriver, attach two clamps (6) to plate (2) with two screws (7) and two lockwashers (8). |
|  | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Adjust switch (para 31.1-10).** |
|  | **END OF TASK** |



## 31.1-6 LEVER REMOVAL PROCEDURE

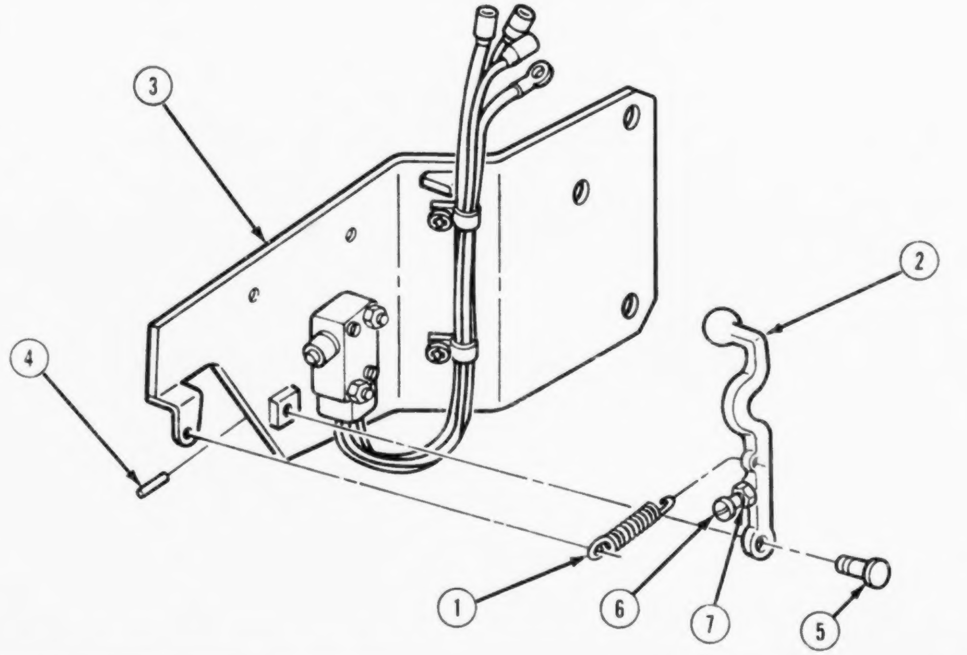
TOOLS: Round nose pliers
1/16 in. drift pin punch
8 oz. ball peen hammer
Flat tip screwdriver
7/16 in. open end wrench

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove loader's safety switch assembly and guard Para 31.1-2
Remove slide Para 31.1-8

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using pliers, remove spring (1) from lever (2) and plate (3). |
| 2. | Using punch and hammer, remove spring pin (4) from plate (3) (JPG). |
| 3. | Remove lever mounting pin (5) and lever (2) from plate (3). |
| 4. | Using wrench and screwdriver remove screw (6) and nut (7) from lever (2). |
| | **END OF TASK** |



## 31.1-7 LEVER INSTALLATION PROCEDURE

TOOLS:
- Round nose pliers
- 1/16 in. drift pin punch
- 8 oz. ball peen hammer
- Flat tip screwdriver

PERSONNEL: One

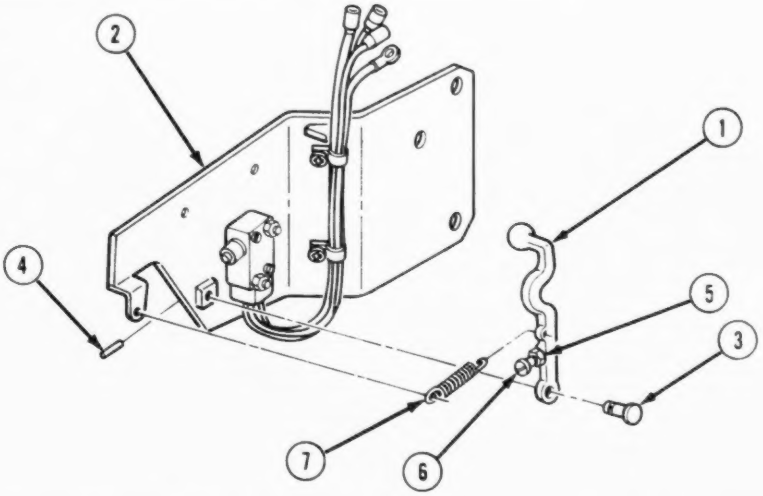
**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Line up mounting hole in lever (1) with mounting hole in plate (2). |
| 2. | Put lever mounting pin (3) through mounting holes in lever (1) and plate (2). |
| 3. | Using punch and hammer, put spring pin (4) in plate (2) and lever mounting pin (3) (JPG). |
| 4. | Thread nut (5) onto screw (6) until it bottoms. |
| 5. | Using screwdriver install screw (6) with nut (5) in lever (1). |
| 6. | Using pliers, attach spring (7) to lever (1) and plate (2). |

NOTE

Follow-on Maintenance Action Required: Install slide Para 31.1-9

**END OF TASK**



## 31.1-8 SLIDE REMOVAL PROCEDURE

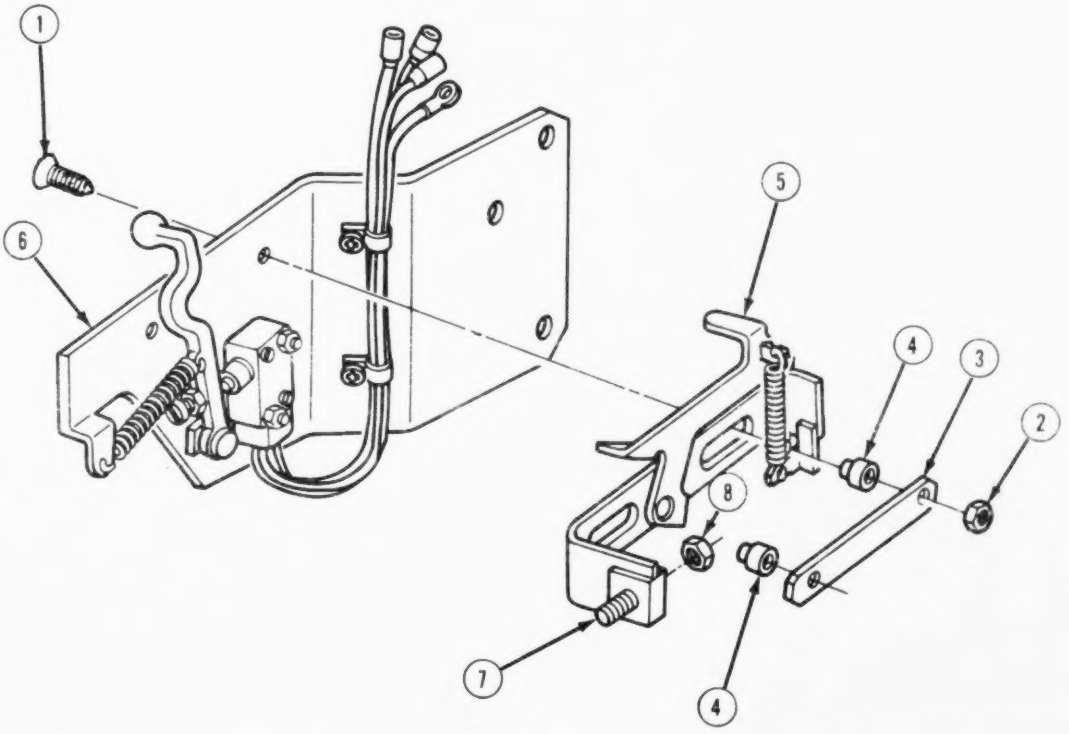
TOOLS:
9/16 in. open end wrench
7/16 in. box end wrench
Cross tip screwdriver (Phillips)
3/16 in. socket head screw key (Allen wrench)

PERSONNEL: One

PRELIMINARY PROCEDURE: Remove loader's safety switch assembly and guard Para 31.1-2

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using screwdriver to hold screws (1), use 7/16 inch wrench and remove two nuts (2). |
| 2. | Remove two screws (1), brace (3), two guides (4), and slide assembly (5) from plate (6). |
| 3. | Using 9/16 inch wrench and Allen wrench, remove screw (7) and nut (8) from slide assembly (5).<br>**END OF TASK** |



## 31.1-9 SLIDE INSTALLATION PROCEDURE

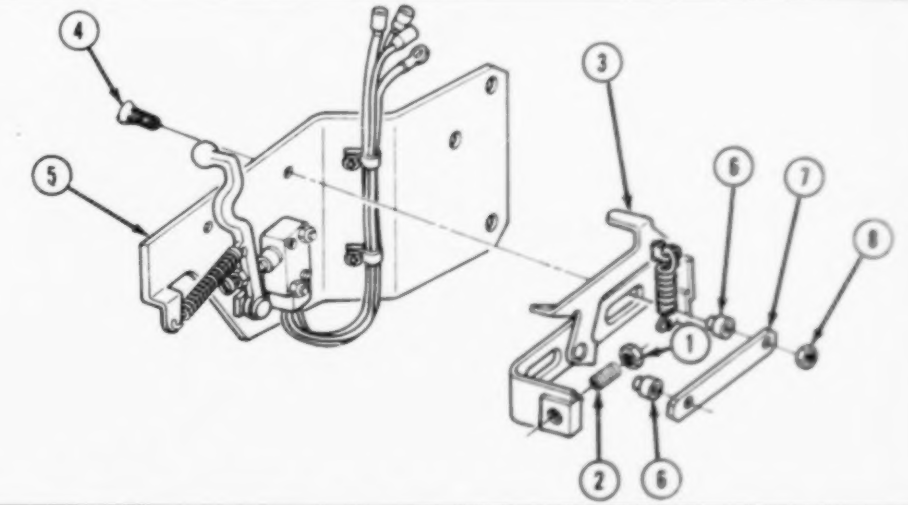
TOOLS: Cross tip screwdriver (Phillips)
7/16 in. box end wrench
3/16 in. socket head screw key (Allen wrench)

PERSONNEL: One

PRELIMINARY PROCEDURE: Install lever Para 31.1-7

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Thread nut (1) onto screw (2). |
| 2. | Using Allen wrench, install screw (2) with nut (1) in slide assembly (3). |
| 3. | Install two screws (4) through plate (5). |
| 4. | Install slide assembly (3) onto guides (6). |
| 5. | Install two guides (6) onto screws (4). |
| 6. | Install brace (7) onto screws (4) and using screwdriver to hold screws (4), use 7/16 inch wrench and install two nuts (8) to secure brace (7), guide (6) and slide assembly (3) to plate (5). |
|  | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Adjust switch (para 31.1-10).** |
|  | **END OF TASK** |



## 31.1-10 LOADER'S SAFETY SWITCH ADJUSTMENT PROCEDURE

TOOLS:
- 9/16 in. open end wrench
- Feeler gauge
- Flat tip screwdriver
- 7/16 in. open end wrench
- 3/16 in. socket head screw key (Allen wrench)

PERSONNEL: One

REFERENCE: JPG for procedure to use feeler gauge

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| 165-mm Gun | FO-4 | 6 |
| Driver's Master Control Panel | FO-3 | 11 |

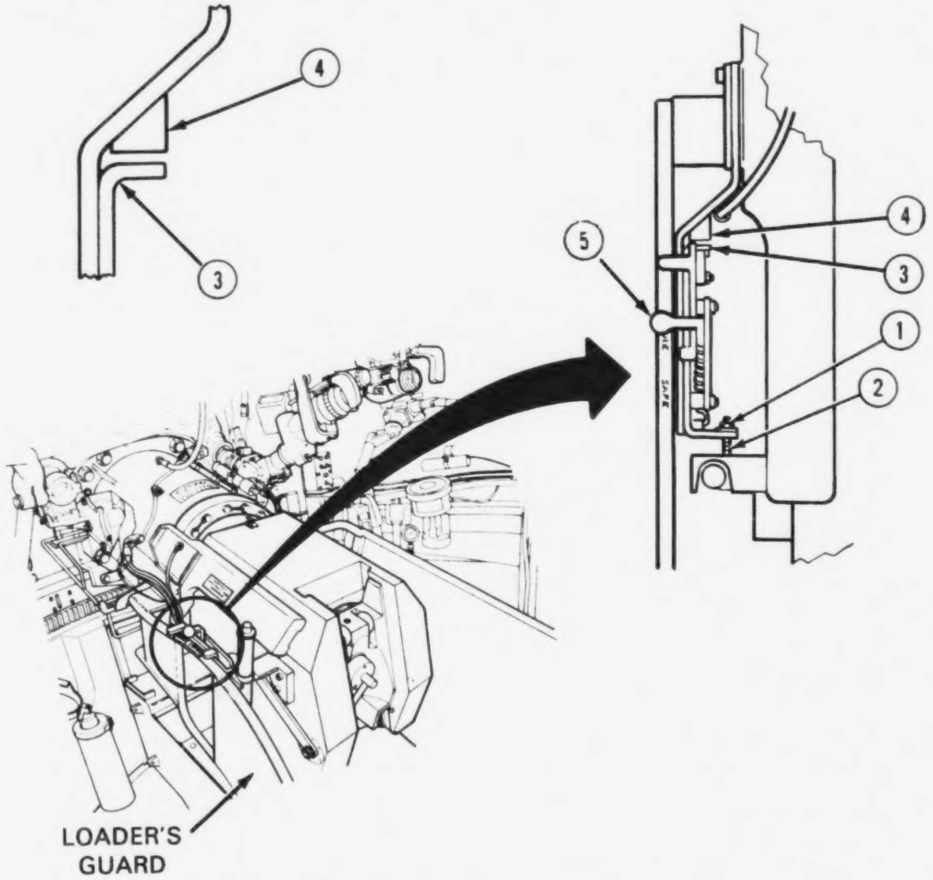
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURE: Install loader's safety switch assembly and guard (para 31.1-3

## 31.1-10 LOADER'S SAFETY SWITCH ADJUSTMENT PROCEDURE (CONT)

**FRAME 1**

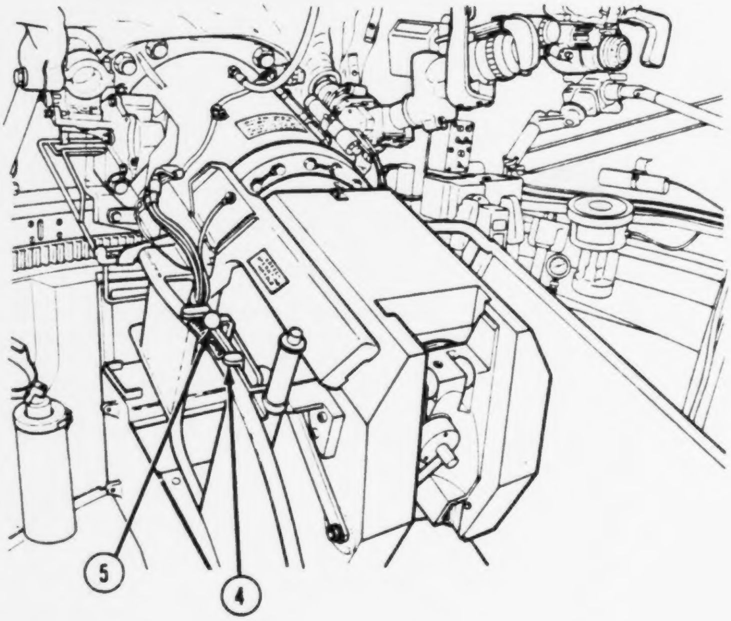
| STEP | PROCEDURE |
|---|---|
| 1. | Using 9/16 inch wrench, loosen slide adjusting nut (1). |
| 2. | Using Allen wrench, turn slide adjusting screw (2) until slide (3) is not touching slide stop (4). |
| 3. | Using Allen wrench and feeler gauge, turn slide adjusting screw (2) until gap between slide (3) and slide stop (4) is set at 0.005 inch (JPG). |
| 4. | Using Allen wrench, hold slide adjusting screw (2). Using 9/16 inch wrench, tighten slide adjusting nut (1) against slide (3). |
| 5. | Push lever (5) forward to FIRE position. |
|  | **GO TO FRAME 2** |



## 31.1-10 LOADER'S SAFETY SWITCH ADJUSTMENT PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Using 7/16 inch wrench, loosen nut (1) on adjusting screw (2). |
| 2. | Using screwdriver, turn adjusting screw (2) counterclockwise until screw (2) does not touch switch plunger (3). |
| 3. | Using screwdriver, turn switch adjusting screw (2) clockwise until switch (4) clicks. Turn adjusting screw (2) clockwise one more turn after switch (4) clicks. |
| 4. | Using screwdriver, hold adjusting screw (2). Using 7/16 inch wrench, lock adjusting nut (1) in place against lever (5). |
| 5. | Pull up on lever (5) and let lever (5) go back to SAFE position. |
|  | **END OF TASK** |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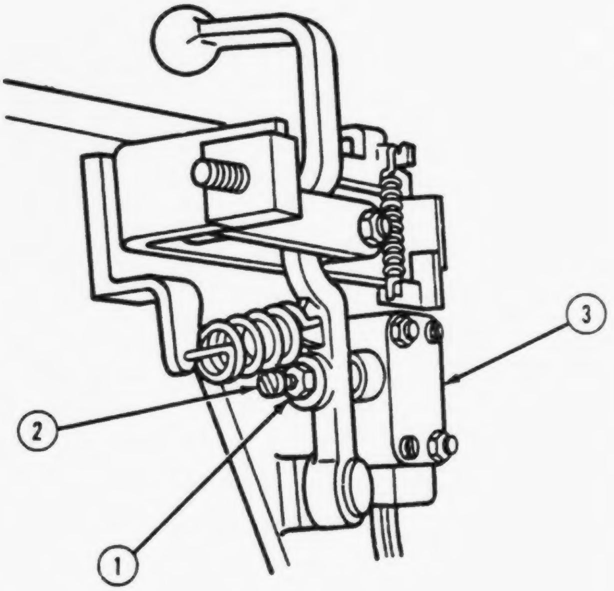
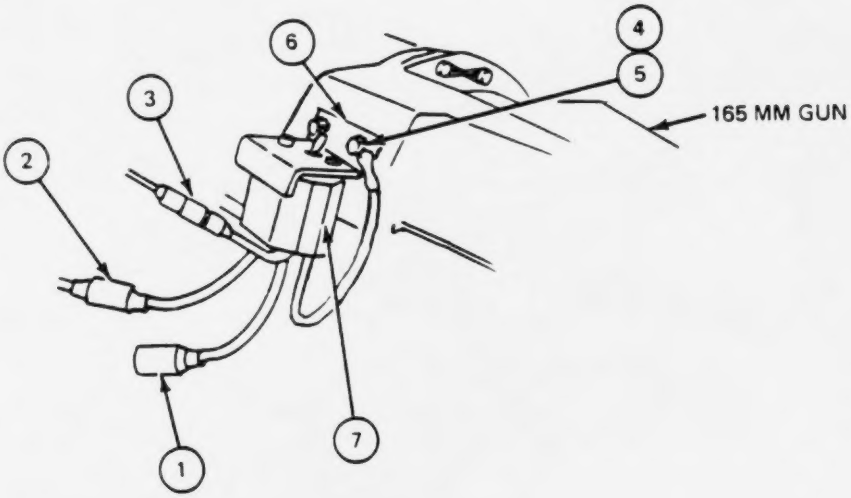


## 31-2. LOADER'S SAFETY SWITCH AND MOUNTING PLATE REMOVAL PROCEDURE (CONT)

**FRAME 1**

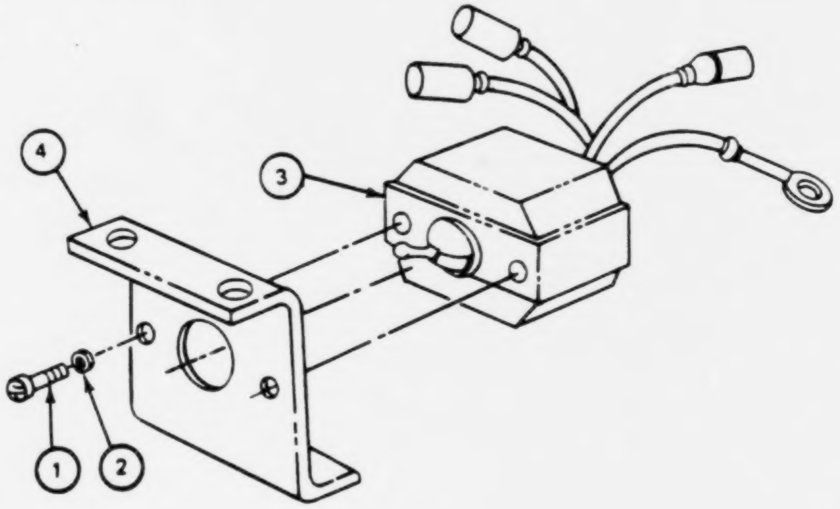
| Step | Procedure |
|---|---|
| 1. | Tag electrical connectors (1), (2), and (3) (JPG). |
| 2. | Disconnect electrical connectors (1), (2), and (3) (JPG). |
| 3. | Using wrench, remove two screws (4), two lockwashers (5), mounting plate (6), and switch (7) from 165-mm gun mount. |
|  | GO TO FRAME 2 |



## 31-2. LOADER'S SAFETY SWITCH AND MOUNTING PLATE REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove two screws (1) and two lockwashers (2). Separate switch (3) from mounting plate (4).<br>END OF TASK |



## 31-3. LOADER'S SAFETY SWITCH AND MOUNTING PLATE INSTALLATION PROCEDURE

TOOLS: 7/16″ open end wrench
Cross tip screwdriver (Phillips)

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors
**TM 9-2350-222-10** for procedure to use firing circuit tester

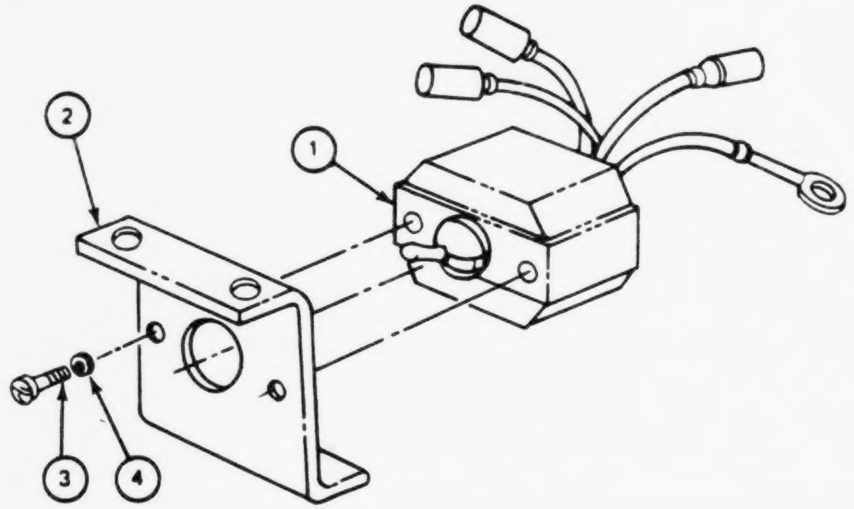
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| 165-mm Gun | FO-4 | 6 |
| Gunner's Control Box | FO-1 | 2 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Gunner's control box MAIN GUN switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, attach switch (1) to mounting plate (2) with two screws (3) and two lockwashers (4).<br>GO TO FRAME 2 |



## 31-3. LOADER'S SAFETY SWITCH AND MOUNTING PLATE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

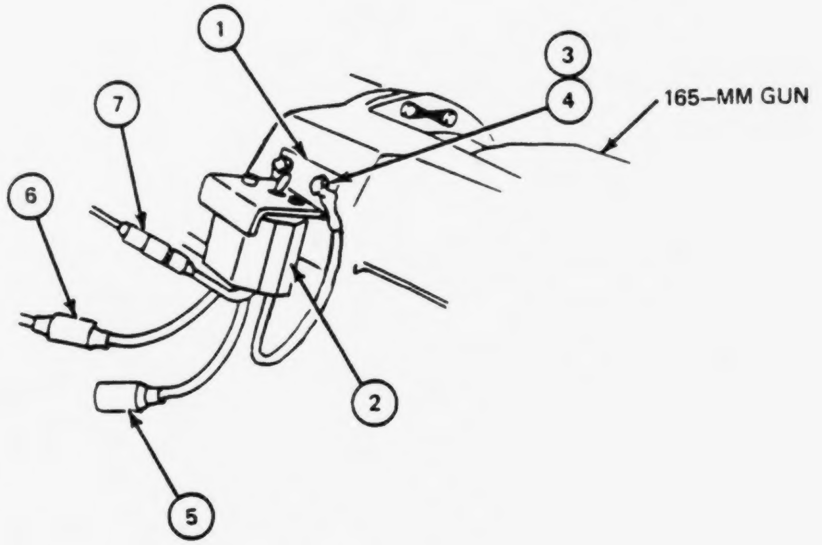
| Step | Procedure |
|---|---|
| 1. | Using wrench, attach mounting plate (1) and switch (2) to 165-mm gun mount with two screws (3) and two lockwashers (4). |
| 2. | Connect electrical connectors (5), (6), and (7) (JPG). |

**NOTE**

Follow-on Maintenance Action Required:

Test loader's safety switch with firing circuit tester (TM-10).

END OF TASK



# CHAPTER 32

# 165-MM COMBINATION GUN MOUNT M-150/M-150A1

## Section 1. SCOPE

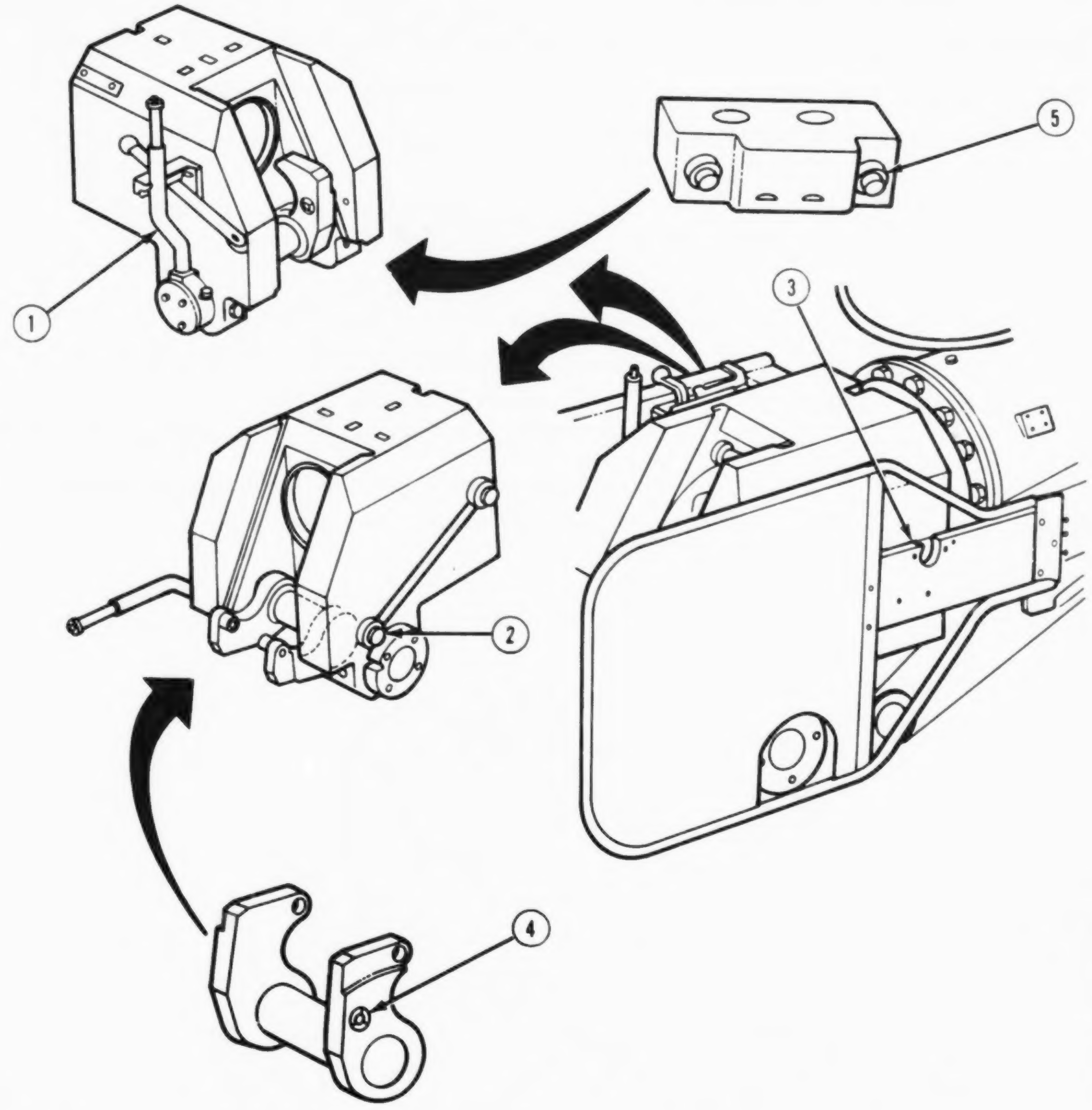
### 32-1. LIST OF EQUIPMENT ITEMS CONTAINED IN THIS CHAPTER

| Section | Equipment Item | Paragraph |
|---|---|---|
| 2 | Breech | 32-2 |
| 3 | Replenisher | 32-13 |
| 4 | Safety Relay | 32-18 |
| 5 | Loader's Guard (Early Model) | 32-21 |
| 6 | Gunner's Guard | 32-24 |

## Section 2. BREECH

### 32-2. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| 1. Breech Operating Mechanism | 32-3 | 32-4 |
| 2. Breechblock Release Mechanism | 32-5 | 32-6 |
| 3. Breechring Firing Contacts | 32-7 | 32-8 |
| 4. Operating Crank Firing Contacts | 32-9 | 32-10 |
| 5. Breechblock Buffer | 32-11 | 32-12 |



## 32-3. BREECH OPERATING MECHANISM REMOVAL PROCEDURE

TOOLS:
- Flat tip screwdriver
- 12 in. adjustable wrench
- Spanner wrench (MS 16146-3)
- 3/16 in. x 6 in. metal rod

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
- Remove breechblock
- Operate gun

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

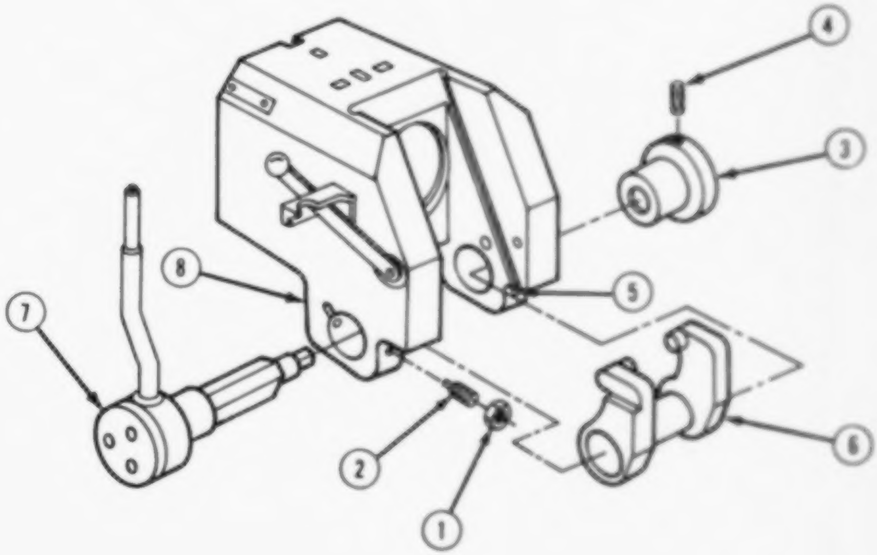
EQUIPMENT CONDITION:
- Breechblock group removed (TM-10)
- Breech operating handle pulled down (TM-10)
- Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURES:
- Remove gunner's guard (para 32-25)
- Remove loader's safety switch and guard (para 31-1,2) (Late model only)
- Remove loader's guard (para 32-22) (Early model only)

## 32-3. BREECH OPERATING MECHANISM REMOVAL PROCEDURE (CONT)

**FRAME 1**

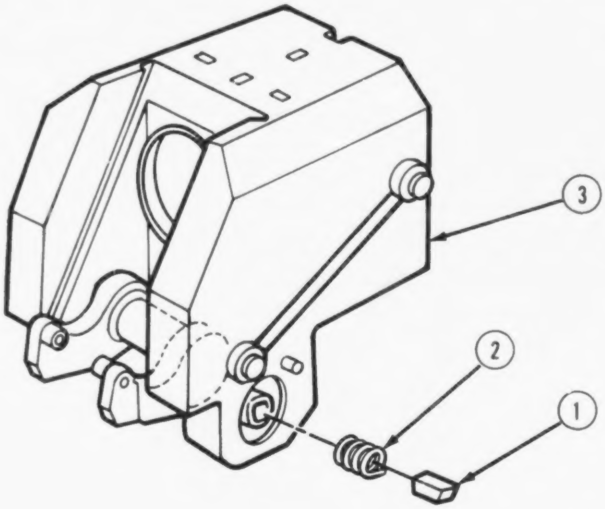
| STEP | PROCEDURE |
|---|---|
| 1. | Using adjustable wrench, loosen two nuts (1) on two detents (2). |
| 2. | Using screwdriver, remove two detents (2). |
| 3. | Using spanner wrench, turn spring adjuster (3) counterclockwise until threaded pin (4) lines up with detent hole (5). |
| 4. | Using screwdriver, unscrew pin (4). |
| 5. | Using metal rod, push pin (4) out through detent hole (5). |
| 6. | Remove spring adjuster (3). |
| 7. | Support crank (6) with right hand and with left hand, pull handle and spring assembly (7) from breechring (8). |
| 8. | Remove crank (6) from breech ring (8).<br>**GO TO FRAME 2** |



## 32-3. BREECH OPERATING MECHANISM REMOVAL PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Remove plunger (1) and spring (2) from breechring (3).<br>**END OF TASK** |



## 32-4. BREECH OPERATING MECHANISM INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver
12" adjustable wrench
Spanner wrench (MS 16146-3)

SUPPLIES: Lubricating oil (item 14, App. A)
Grease (item 11, App. A)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Install breechblock
Adjust breech closing swing
JPG for procedure to lubricate parts.

EQUIPMENT LOCATION INFORMATION:

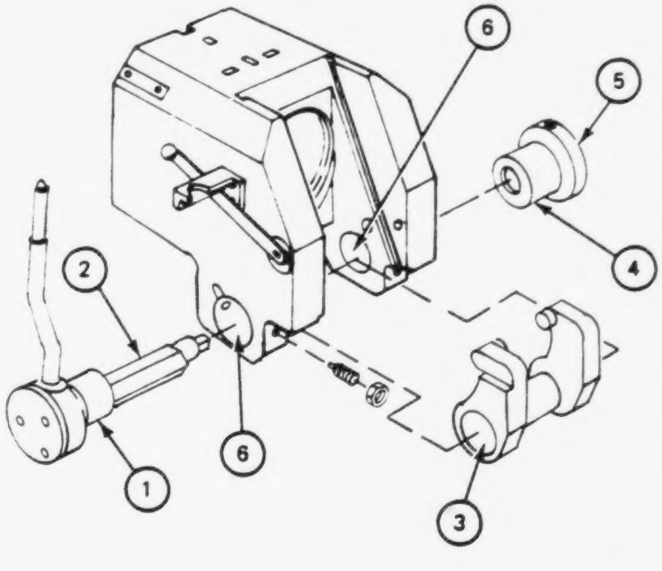
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's Master Control Panel MASTER BATTERY switch set to OFF

## 32-4. BREECH OPERATING MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 1**

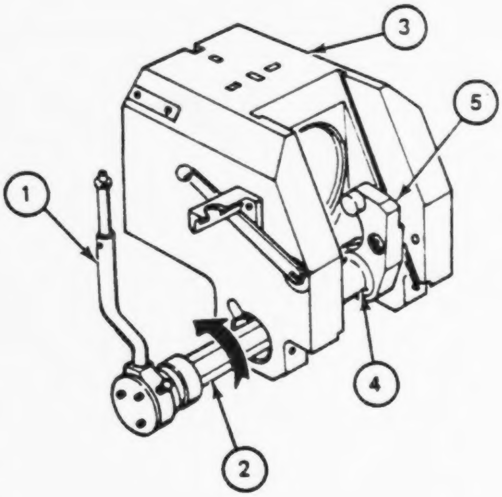
| Step | Procedure |
|---|---|
| 1. | Lightly coat all parts with thin film of oil (JPG). |
| 2. | Lubricate all bearing surfaces of shoulder (1) and flats (2) of shaft, inside surface of crank (3), shoulder (4) of adjustor (5) and holes (6) in breechring with grease (TM-10).<br>GO TO FRAME 2 |



## 32-4. BREECH OPERATING MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 2**

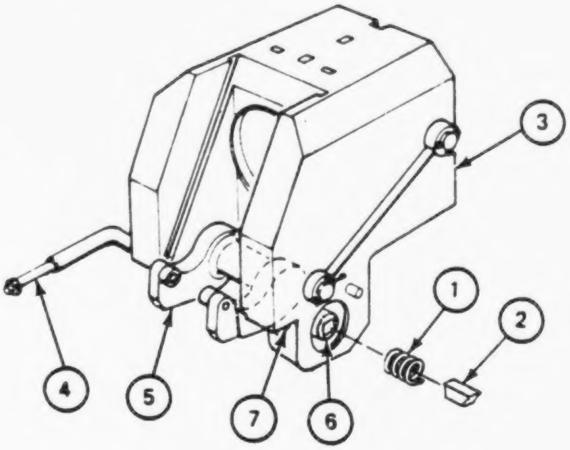
| Step | Procedure |
|---|---|
| 1. | Hold handle (1) stright up, and slide shaft (2) in one side of breechring (3). |
| 2. | Turn shaft (2) counterclockwise. |
| 3. | Put crank (4) in breechring (3) with arms (5) pointing up. |
| 4. | Lineup crank (4) with shaft (2). Push handle (1) and shaft (2) through crank (4) and into other side of breechring (3).<br>GO TO FRAME 3 |



## 32-4. BREECH OPERATING MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 3**

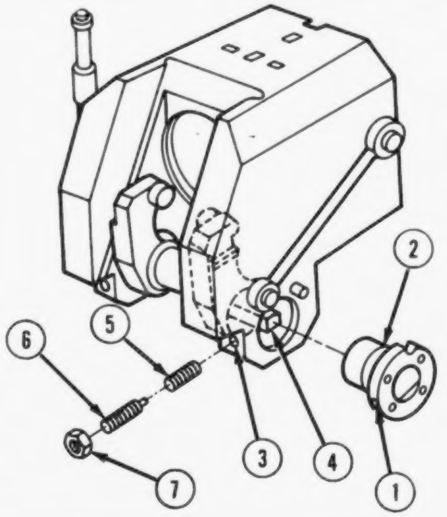
| Step | Procedure |
|---|---|
| 1. | Place spring (1) and plunger (2) inside breechring (3). |
| 2. | Pull handle (4) and crank arms (5) down so pin hole in spring stack (6) is lined up with detent hole (7).<br>GO TO FRAME 4 |



## 32-4. BREECH OPERATING MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 4**

| STEP | PROCEDURE |
|---|---|
| 1. | Line threaded pin hole (1) on adjuster (2) up with detent hole (3). |
| 2. | Push adjuster (2) on spring stack (4). |
| 3. | Line up pin hole of adjuster (2) with pin hole on spring stack (4). |
| | **NOTE**<br>Head of pin (5) should be screwed in below surface of adjuster (2). |
| 4. | Using screwdriver, install threaded pin (5) in adjuster (2). |
| 5. | Using screwdriver, install two detents (6). |
| 6. | Using adjustable wrench, tighten two nuts (7) on two detents (6). |
| | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Adjust breech closing swing (TM-10).**<br>**Install breechblock group (TM-10).**<br>**Install loader's safety switch and guard (para 31.1-3) (Late model only)**<br>**Install gunner's guard (para 32-26).**<br>**Install loader's guard (para 32-23) (Early model only)** |
| | **END OF TASK** |



## 32-5. BREECHBLOCK RELEASE MECHANISM REMOVAL PROCEDURE

TOOLS: 5/32 in. socket head screw key (Allen wrench)
Spanner wrench (MS 16146-3)

PERSONNEL: One

REFERENCE: TM 9-2350-222-10 for procedure to:
Remove breechblock
Operate gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

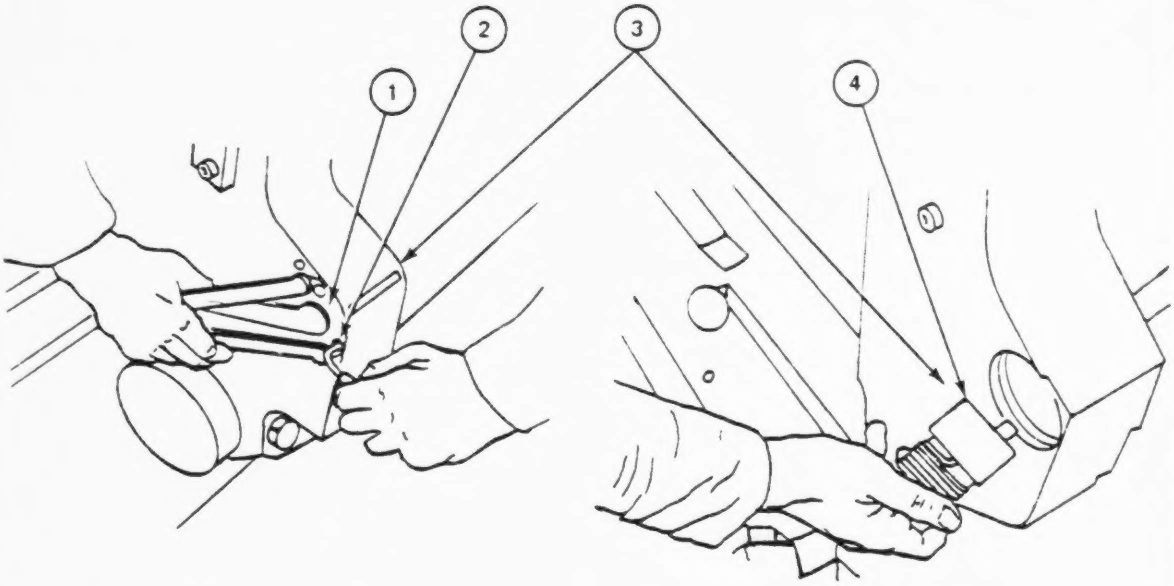
EQUIPMENT CONDITION: Breechblock group removed (TM-10)
Breech operating handle pulled down (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURES: Remove loader's safety switch and guard (para 31- 1.2)(Late model only)
Remove loader's guard (para 32-22) (Early model only)

## 32-5. BREECHBLOCK RELEASE MECHANISM REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using spanner wrench hold cover (1). Using Allen wrench, remove three screws (2) that attach cover (1) to breechring (3). |
| 2. | Using spanner wrench, turn cover (1) clockwise until there is no more spring tension. |
| 3. | Remove release mechanism (4) from breechring (3). |
|  | END OF TASK |



## 32-6. BREECHBLOCK RELEASE MECHANISM INSTALLATION PROCEDURE

TOOLS: 5/32" socket head screw key (Allen wrench)
Spanner wrench (MS 6146-3)

SUPPLIES: Grease automotive and artillery (item 11, App. A)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to:
Install breechblock
Operate gun
JPG for procedure to lubricate parts

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's Master Control Panel MASTER BATTERY switch set to OFF

## 32-6. BREECHBLOCK RELEASE MECHANISM INSTALLATION PROCEDURE (CONT)

**FRAME 1**

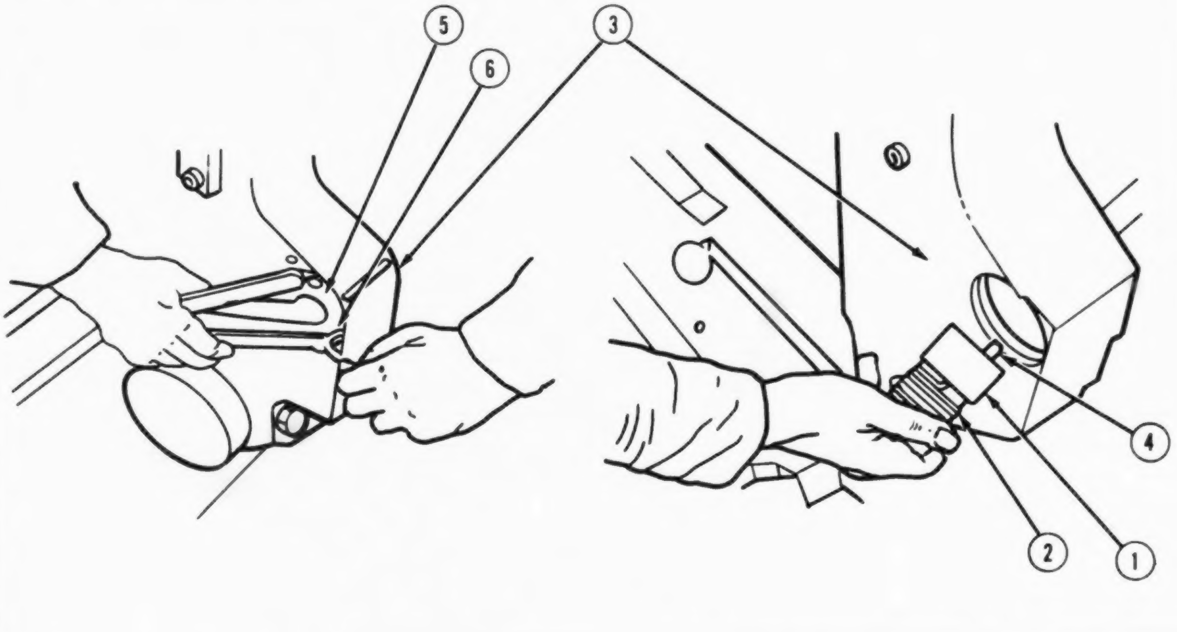
| STEP | PROCEDURE |
|---|---|
| 1. | Lubricate shoulder face and cam of crank (1) (TM-10). |
| 2. | Put release mechanism (2) in breechring (3) so cam (4) fits in slot on inner face of breechring (3). |
| 3. | Using spanner wrench, turn cover (5) counterclockwise until three holes in cover (5) line up with three holes in breechring (3), and flat edge of cover (5) is lined up with rear of breechring (3). |
| 4. | Using Allen wrench, attach cover (5) to breechring (3) with three new self- locking screws (6). |

**NOTE**

**Follow-on Maintenance Action Required:**

**Install breechblock group (TM-10).**
**Install loader's safety switch and guard (para 31-1.3) (Late model only)**
**Install loader's guard (para 32-23) (Early model only)**

**END OF TASK**



## 32-7. BREECHRING FIRING CONTACTS REMOVAL PROCEDURE

TOOLS: 5/16 in. socket head screw key (Allen wrench)
Flat tip screwdriver

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Control Box | FO-1 | 2 |
| Loader's Safety Switch | FO-4 | 24 |

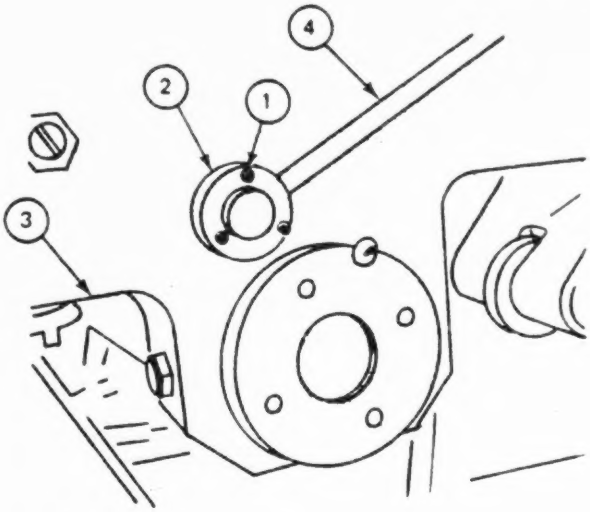
EQUIPMENT CONDITION: MAIN GUN switch on gunner's control box set to OFF
Loader's safety switch set to SAFE
Driver's master control panel MASTER BATTERY switch set to OFF

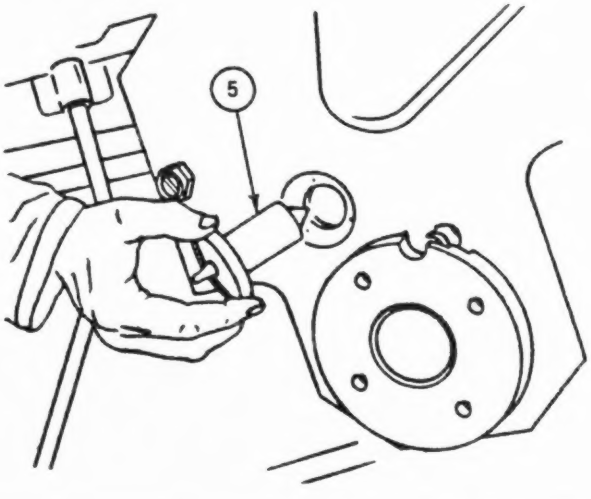
PRELIMINARY PROCEDURE: Remove gunner's guard (para 32-25)

## 32-7. BREECHRING FIRING CONTACTS REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using Allen wrench, remove three screws (1) that attach contact cap (2) to breechring (3). |
| 2. | Remove contact cap (2), connector rod (4) and contact (5), from breechring (3).<br>GO TO FRAME 2 |

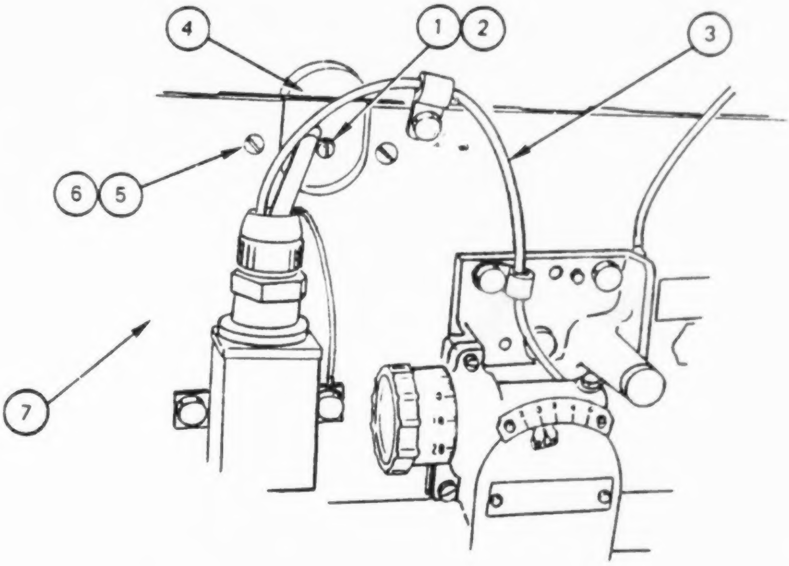




## 32-7. BREECHRING FIRING CONTACTS REMOVAL PROCEDURE (CONT)

**FRAME 2**

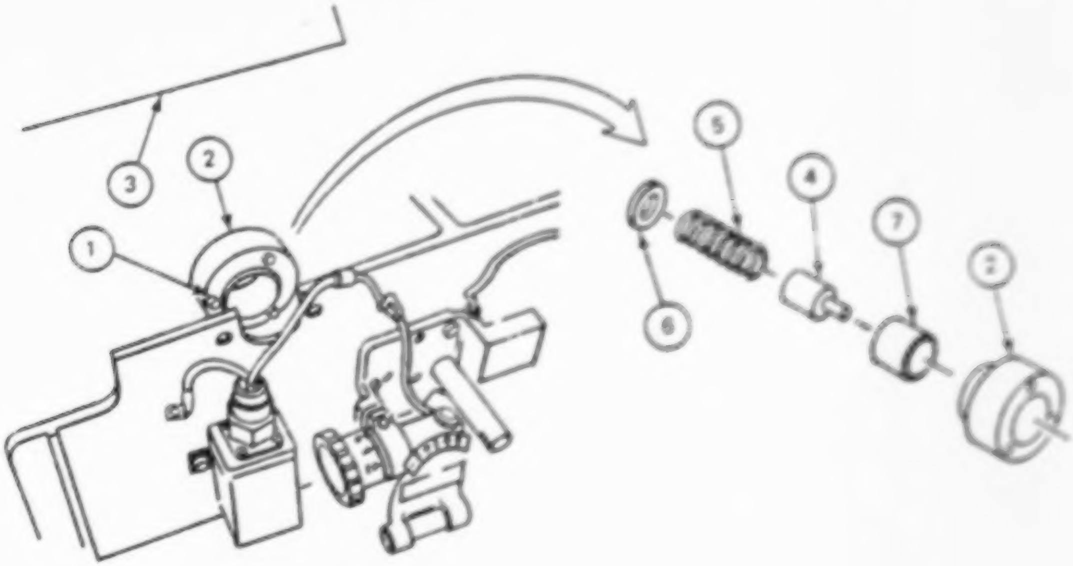
| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove screw (1) and lockwasher (2) that attach lead (3) to contact plate (4). |
| 2. | Using screwdriver, remove two screws (5) and two lockwashers (6) that attach contact plate (4) to gunner's guard support plate (7). |
| 3. | Remove contact plate (4). |
|  | GO TO FRAME 3 |



## 32-7. BREECHRING FIRING CONTACTS REMOVAL PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Using Allen wrench, remove three screws (1) that attach contact housing (2) to breechring (3). |
| 2. | Remove contact housing (2), contact (4), spring (5) contact washer (6) and insulator (7).<br>END OF TASK |



## 32-8. BREECHRING FIRING CONTACTS INSTALLATION PROCEDURE

TOOLS: 5/16" socket head screw key (Allen wrench)
Flat tip screwdriver

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

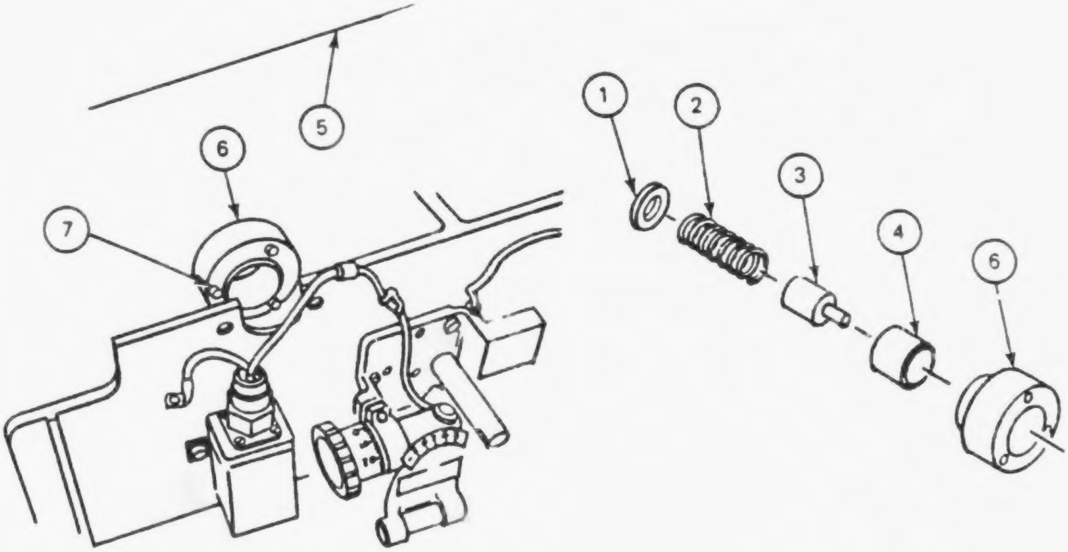
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Control Box | FO-1 | 2 |
| Loader's Safety Switch | FO-4 | 24 |

EQUIPMENT CONDITION: MAIN GUN switch on gunner's control box set to OFF
Loader's safety switch set to SAFE
Driver's master control panel MASTER BATTERY switch set to OFF

## 32-8. BREECHRING FIRING CONTACTS INSTALLATION PROCEDURE (CONT)

**FRAME 1**

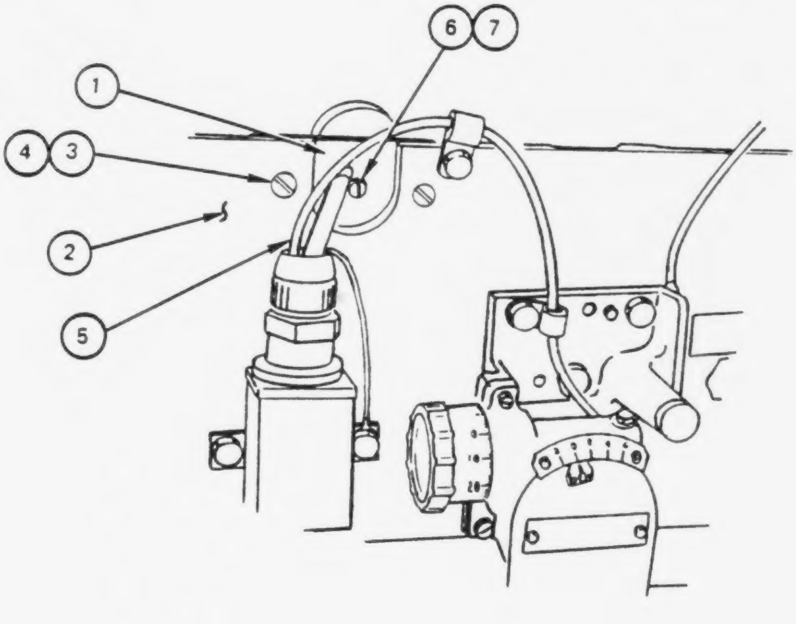
| Step | Procedure |
|---|---|
| 1. | Put contact washer (1), spring (2), contact (3) and insulator (4) in breechring (5). |
| 2. | Using Allen wrench, attach contact housing (6) to breechring (5) with three screws (7).<br>GO TO FRAME 2 |



## 32-8. BREECHRING FIRING CONTACTS INSTALLATION PROCEDURE (CONT)

**FRAME 2**

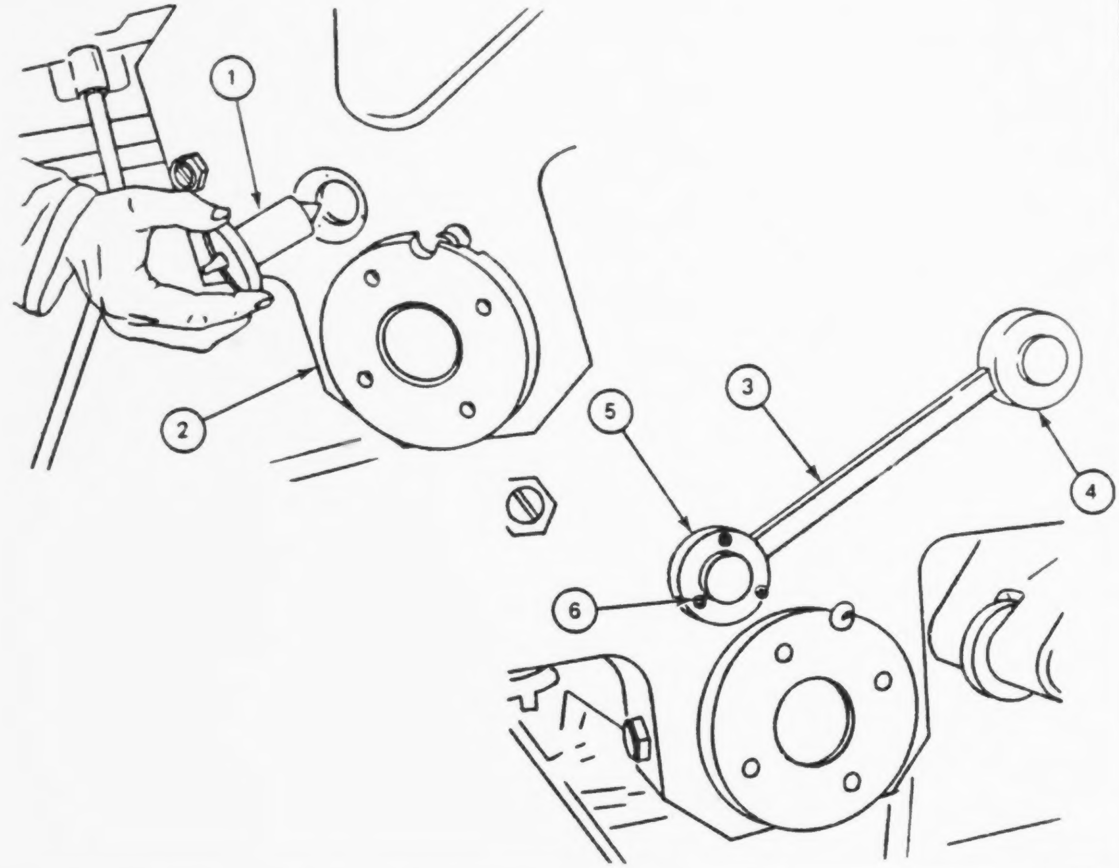
| Step | Procedure |
|---|---|
| 1. | Using screwdriver, attach contact plate (1) to gunner's guard support plate (2) with two screws (3) and two lockwashers (4). |
| 2. | Using screwdriver, attach lead (5) to contact plate (1) with screw (6) and lockwasher (7).<br>GO TO FRAME 3 |



## 32-8. BREECHRING FIRING CONTACT INSTALLATION PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Put contact (1) in breechring (2). |
| 2. | Put connector rod (3) in contact housing (4) and contact cap (5). |
| 3. | Using Allen wrench, attach contact cap (5) to breechring (2) with three screws (6). |
| | **NOTE** |
| | Follow-on Maintenance Action Required: |
| | Install gunner's guard (para 32-26). |
| | END OF TASK |



## 32-9. OPERATING CRANK FIRING CONTACTS REMOVAL PROCEDURE

TOOLS: 3/32" socket head screw key (Allen wrench)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Remove breech block
Operate gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

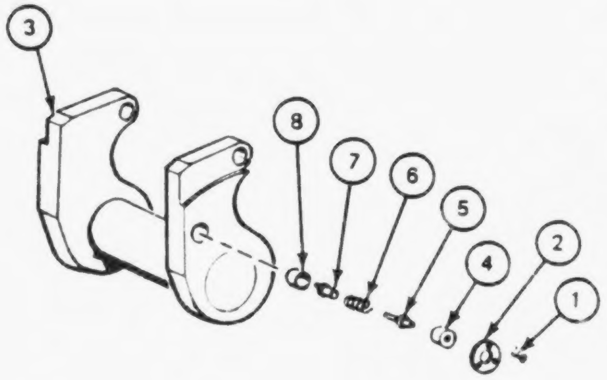
EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to **OFF**

PRELIMINARY PROCEDURES: Remove gunner's guard (para 32-25).

## 32-9. OPERATING CRANK FIRING CONTACT REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using Allen wrench, remove three screws (1) that attach cover (2) to crank (3). |
| 2. | Remove cover (2), insulator (4), male contact (5), spring (6), female contact (7), and insulator (8) from crank (3).<br>END OF TASK |



## 32-10. OPERATING CRANK FIRING CONTACTS INSTALLATION PROCEDURE

TOOLS: 3/32" socket head screw key (Allen wrench)

SUPPLIES: Self locking screw 8769445 (three)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Install breech block
Operate gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Breech operating handle pulled down (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 32-10. OPERATING CRANK FIRING CONTACTS INSTALLATION PROCEDURE (CONT)

**FRAME 1**

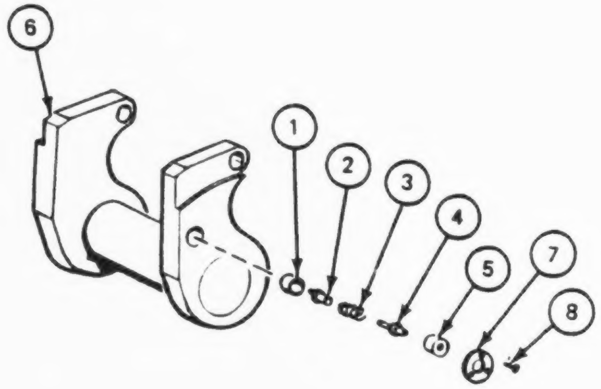
| Step | Procedure |
|---|---|
| 1. | Put insulator (1), female contact (2), spring (3), male contact (4), and insulator (5), in crank (6). |
| 2. | Using Allen wrench, attach cover (7) to crank (6) with three selflocking screws (8). |

**NOTE**

Follow-on Maintenance Action Required:

Install breech block group (TM-10).
Install gunner's guard (para 32-26).

END OF TASK



## 32-11. BREECHBLOCK BUFFER REMOVAL PROCEDURE

TOOLS: 5/16" socket head screw key (Allen wrench)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to operate gun

EQUIPMENT LOCATION INFORMATION:

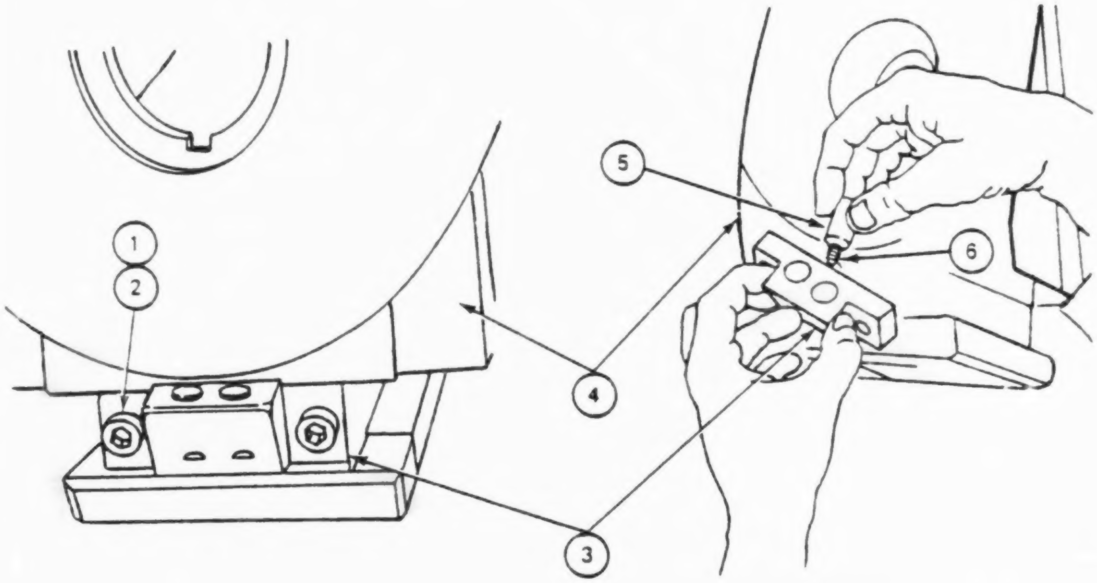
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Breechblock opened (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 32-11. BREECHBLOCK BUFFER REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using Allen wrench, remove two screws (1) and two lockwashers (2) that attach buffer (3) to breechblock (4). |
| 2. | Remove buffer (3), two plungers (5) and two springs (6) from breechblock (4).<br>END OF TASK |



## 32-12. BREECHBLOCK BUFFER INSTALLATION PROCEDURE

TOOLS: 5/16" socket head screw key (Allen wrench)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to operate gun

EQUIPMENT LOCATION INFORMATION:

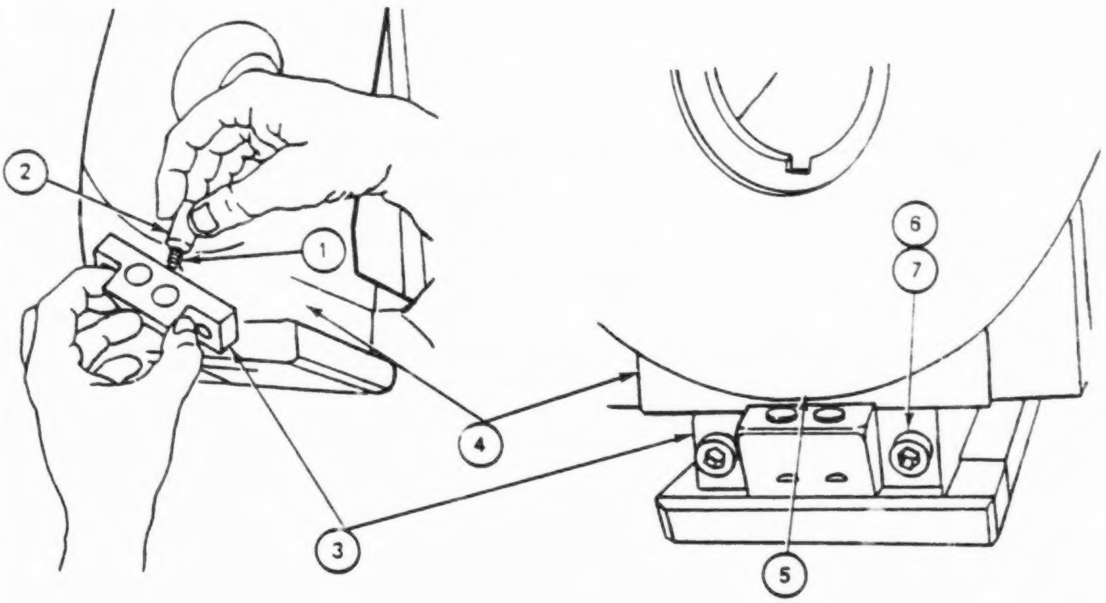
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Breechblock opened (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 32-12. BREECHBLOCK BUFFER INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put two springs (1) and two plungers (2) in buffer (3). |
| 2. | Put buffer (3) in place on breechblock (4) so plungers push against lower surface of oburator (5). |
| 3. | Using Allen wrench, attach buffer (3) to breechblock (4) with two screws (6) and two lockwashrers (7). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Close breechblock (TM-10). |
|  | END OF TASK |



## Section 3. REPLENISHER

### 32-13. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| 1. Replenisher | 32-14 | 32-15 |
| 2. Replenisher Hose | 32-16 | 32-17 |

### 32-14. REPLENISHER REMOVAL PROCEDURE

TOOLS: Pliers
9/16" combination wrench
5/8" combination wrench
1/2" combination wrench
1/2" socket (3/8" drive)
3/8" drive ratchet

SUPPLIES: Bucket

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to elevate and depress 165-mm gun

EQUIPMENT LOCATION INFORMATION:

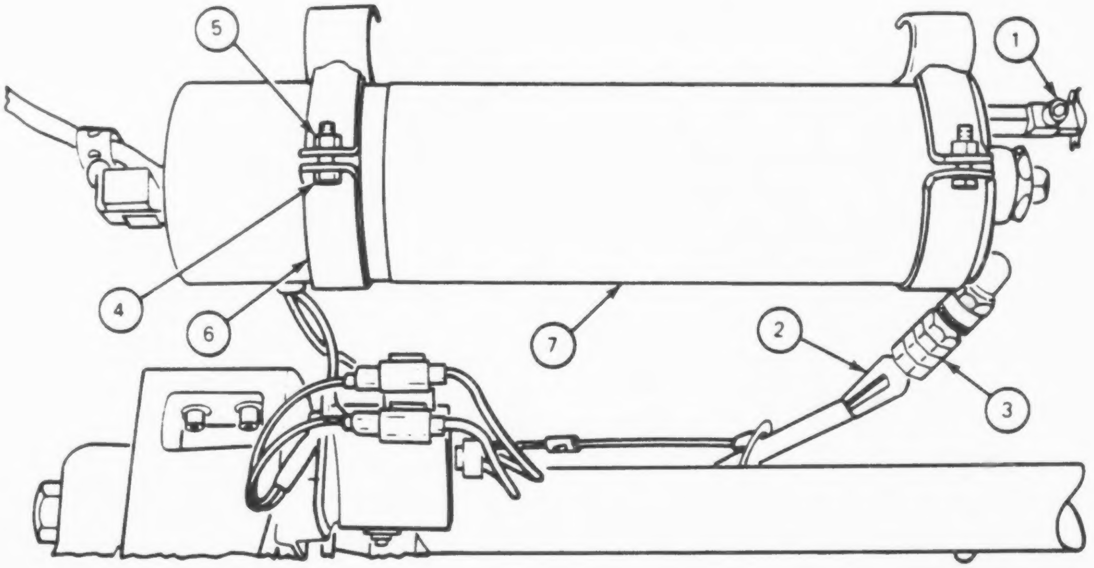
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Replenisher | FO-4 | 1 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
165-mm gun in level position (TM-10)

## 32-14. REPLENISHER REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **WARNING**<br>Be careful when doing step 1 as oil may squirt out due to air pressure. |
| 1. | Using pliers, open petcock valve (1) and drain oil into a bucket. |
| | **NOTE**<br>Some hose connectors require a 9/16" wrench and others a 5/8" wrench. |
| 2. | Using appropriate wrench, disconnect hose (2) from adapter (3). Place bucket under hose (2) to keep oil from spilling. |
| 3. | Using 1/2" combination wrench and 1/2" socket wrench, remove two screws (4) and two nuts (5) from two clamps (6). |
| 4. | Open two clamps (6) and remove replenisher (7). |
| | END OF TASK |



## 32-15. REPLENISHER INSTALLATION PROCEDURE

TOOLS: Pliers
9/16" combination wrench
1/2" combination wrench
5/8" combination wrench
1/2" socket (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to refill replenisher

EQUIPMENT LOCATION INFORMATION:

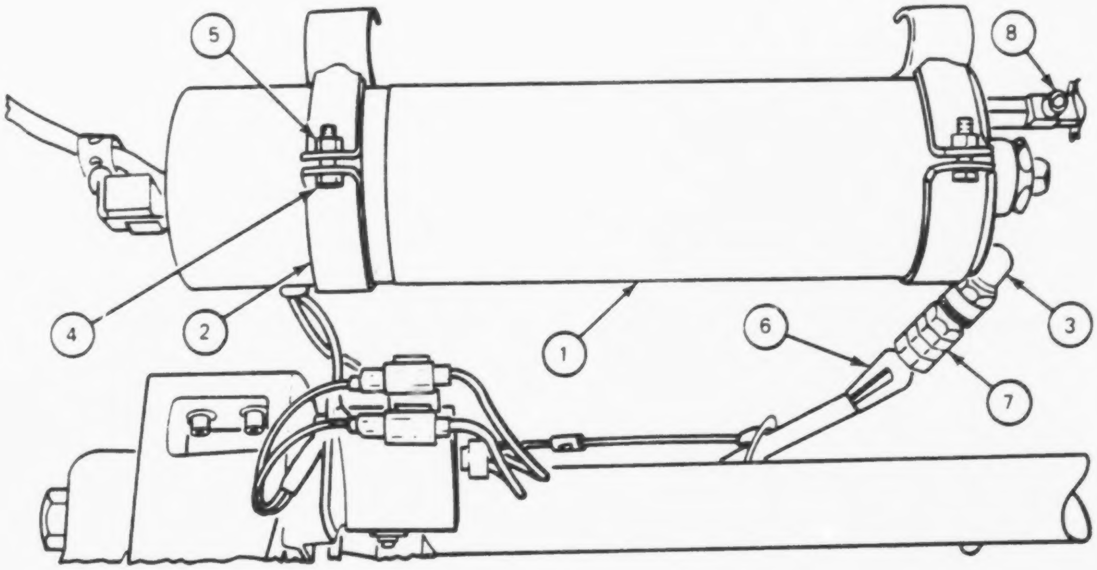
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Replenisher | FO-4 | 1 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-15. REPLENISHER INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place replenisher (1) on clamps (2) with elbow (3) at bottom. |
| 2. | Using 1/2" combination wrench and 1/2" socket wernch, put two screws (4) and two nuts (5) in clamps (2) to hold replenisher (1). |
|  | **NOTE**<br>Some hose connectors require a 9/16" wrench, and others a 5/8" wrench. |
| 3. | Using appropriate wrench, connect hose (6) to adapter (7). |
| 4. | Using pliers, close petcock (8). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Refill replenisher (TM-10). |
|  | END OF TASK |



## 32-16. REPLENISHER HOSE REMOVAL PROCEDURE

TOOLS: Slip joint pliers
9/16" combination wrench
5/8" combination wrench

SUPPLIES: Bucket
Rags (item 15, App. A)

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Replenisher | FO-4 | 1 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

**CAUTION**

Keep dirt from getting into tubing or parts. Dirt can damage equipment.

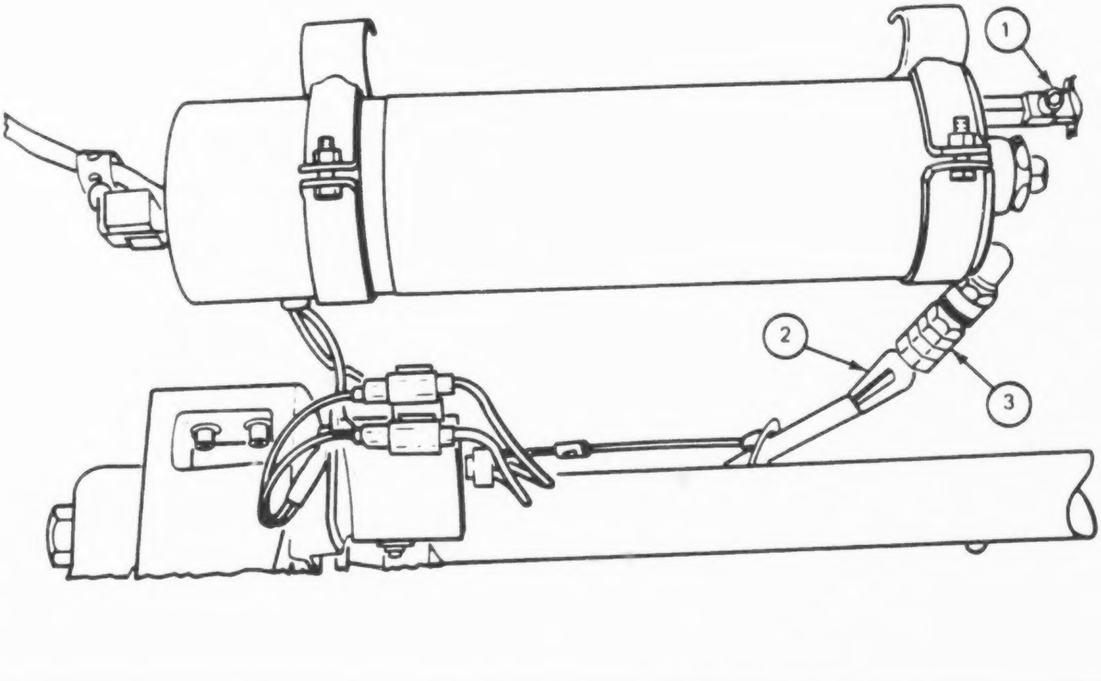
**NOTE**

Use rags to clean up oil spillage.

## 32-16. REPLENISHER HOSE REMOVAL PROCEDURE (CONT)

FRAME 1

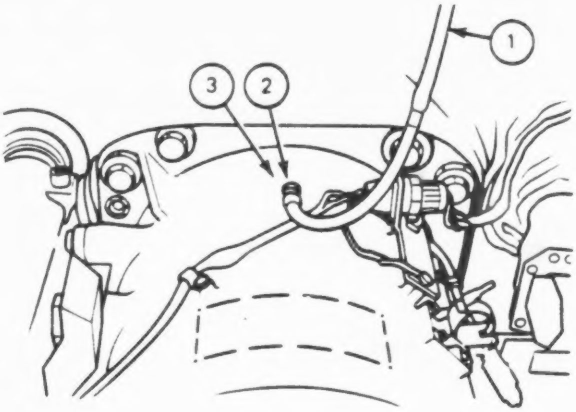
| Step | Procedure |
|---|---|
| | **WARNING**<br>Be careful when doing step 1 as oil may squirt out due to air pressure. |
| 1. | Using pliers, open petcock (1) and drain oil into a bucket. |
| | **NOTE**<br>Some hose connectors require a 9/16" wrench and others a 5/8" wrench. |
| 2. | Using appropriate wrench, disconnect hose (2) from adapter (3).<br>GO TO FRAME 2 |



## 32-16. REPLENISHER HOSE REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using appropriate wrench, disconnect hose (1) from elbow (2). Remove hose from combination gun mount (3).<br>END OF TASK |



## 32-17. REPLENISHER HOSE INSTALLATION PROCEDURE

TOOLS: 9/16" combination wrench
5/8" combination wrench
Slip joint pliers

REFERENCES: TM 9-2350-222-10 for procedure to refill replenisher

EQUIPMENT LOCATION INFORMATION:

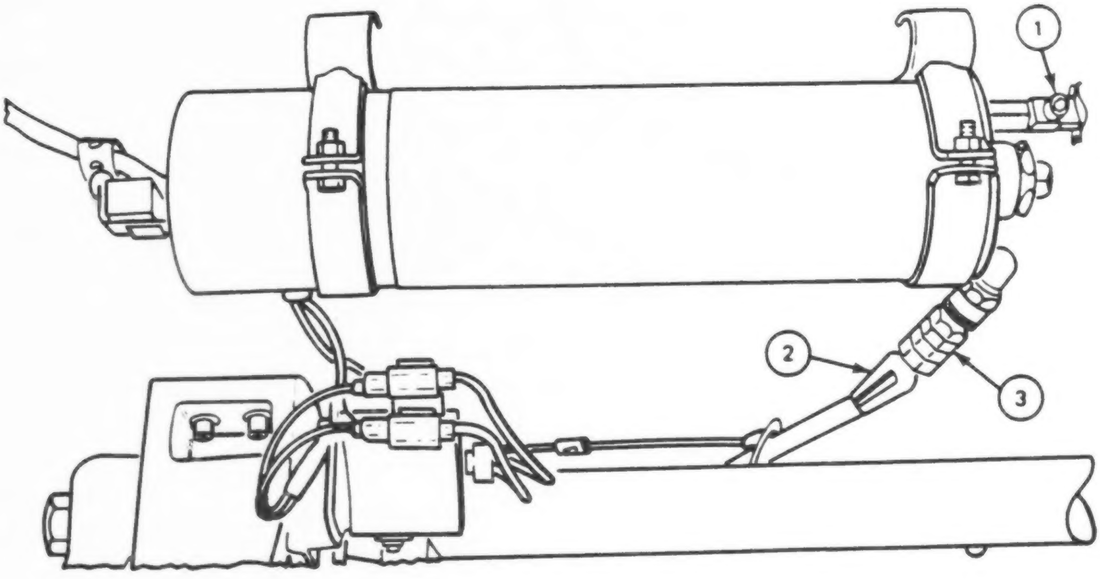
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Replenisher | FO-4 | 1 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-17. REPLENISHER HOSE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

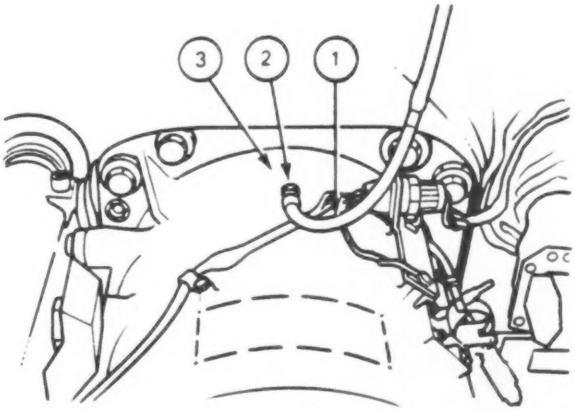
| Step | Procedure |
|---|---|
| 1. | Using pliers, close petcock (1).<br>**NOTE**<br>Some hose connectors require a 9/16" wrench and others a 5/8" wrench. |
| 2. | Using appropriate wrench, connect hose (2) to adapter (3).<br>GO TO FRAME 2 |



## 32-17. REPLENISHER HOSE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using appropriate wrench, connect hose (1) to elbow (2) on combination gun mount (3).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Refill replenisher (TM-10).<br>END OF TASK |



## Section 4. SAFETY RELAY

### 32-18. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| Safety Relay | 32-19 | 32-20 |

### 32-19. SAFETY RELAY REMOVAL PROCEDURE

TOOLS: 12" adjustable wrench
7/16" combination wrench

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

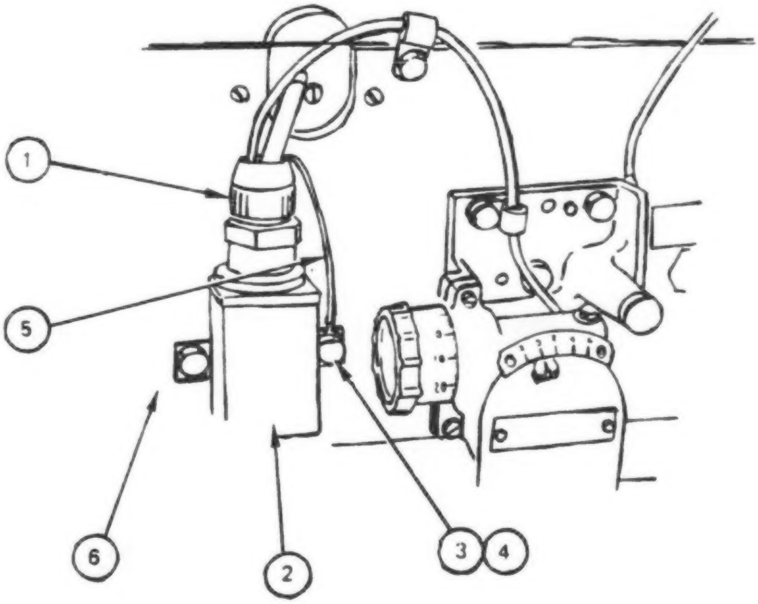
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Guard | FO-1 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-19. SAFETY RELAY REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using adjustable wrench, disconnect electrical connector (1) from safety relay (2) (JPG). |
| 2. | Using 7/16" combination wrench, remove two screws (3) two lockwashers (4) that attaches ground lead (5) and safety relay (2) to bracket (6). Remove safety relay.<br>END OF TASK |



## 32-20. SAFETY RELAY INSTALLATION PROCEDURE

TOOLS: 12" adjustable wrench
7/16" combination wrench

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

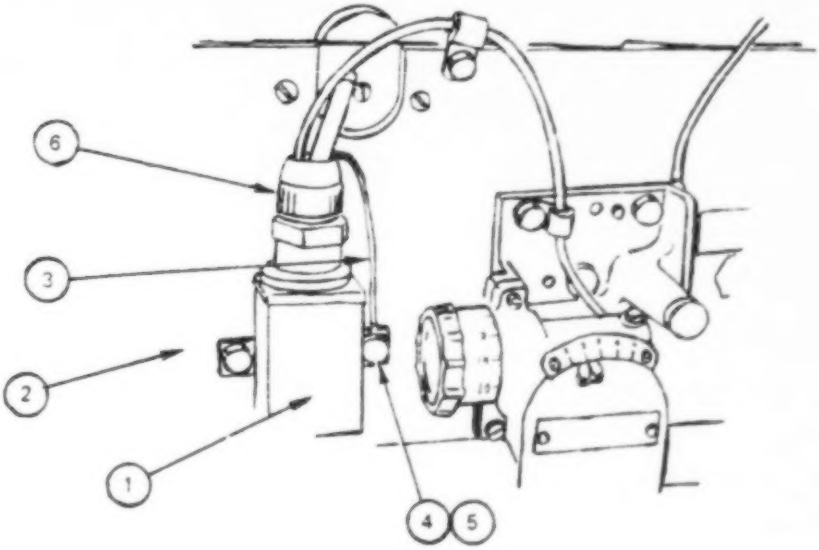
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Guard | FO-1 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-20. SAFETY RELAY INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place safety relay (1) on bracket (2). |
| 2. | Place ground lead (3) over right mounting hold of safety relay (1). |
| 3. | Using 7/16" combination wrench, attach ground lead (3) and safety relay (1) to bracket (2) with two screws (4) and two lockwashers (5). |
| 4. | Using adjustable wrench, connect electrical connector (6) (JPG). |
|  | END OF TASK |



## Section 5. LOADER'S GUARD (EARLY MODEL)

### 32-21. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Loader's Guard | 32-22 | 32-23 |

### 32-22. LOADER'S GUARD REMOVAL PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
1/2" drive ratchet

PERSONNEL: Two

EQUIPMENT LOCATION INFORMATION:

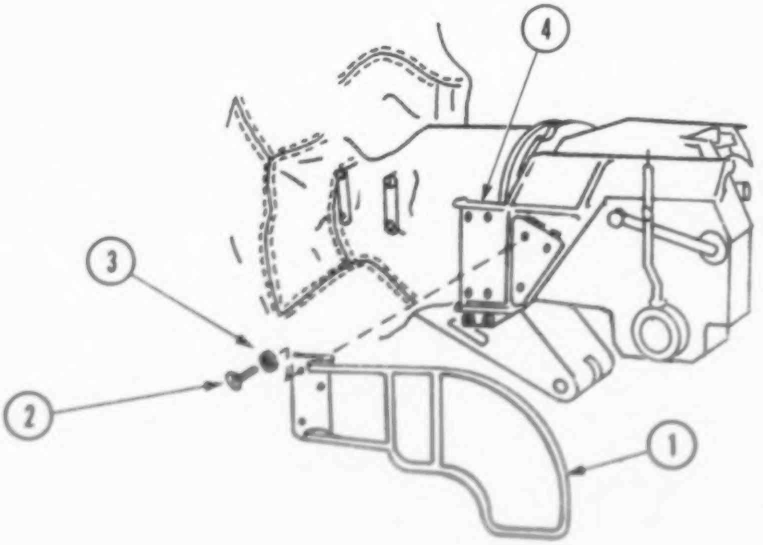
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Guard | FO-4 | 22 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-22. LOADER'S GUARD REMOVAL PROCEDURE (EARLY MODEL) CONT

FRAME 1

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold loader's guard (1). |
| 2. | Soldier B: Using socket wrench, remove three screws (2) and three lockwashers (3) that attach loader's guard (1) to torque bracket (4). |
| 3. | Soldier A: Remove loader's guard. |
|  | END OF TASK |



## 32-23. LOADER'S GUARD INSTALLATION PROCEDURE (EARLY MODEL)

TOOLS:
- 3/4" socket (1/2" drive)
- 1/2" drive torque wrench (0 to 250 foot-pounds)
- 1/2" drive ratchet

PERSONNEL: Two

REFERENCES: JPG for procedure to use torque wrench

EQUIPMENT LOCATION INFORMATION:

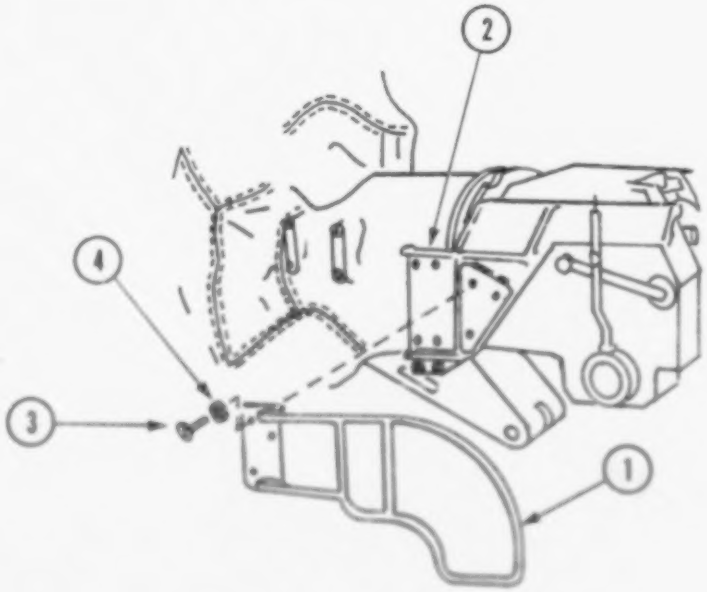
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Loader's Guard | FO-4 | 22 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-23. LOADER'S GUARD INSTALLATION PROCEDURE (EARLY MODEL) CONT

FRAME 1

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold loader's guard (1) in place on torque bracket (2). |
| 2. | Soldier B: Using socket wrench, attach loader's guard (1) to torque bracket (2) with three screws (3) and three lockwashers (4). |
| 3. | Soldier B: Using torque wrench, torque three screws (3) to between 80 and 90 foot-pounds (JPG). |
| | END OF TASK |



## Section 6. GUNNER'S GUARD

### 32-24. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Gunner's Guard | 32-25 | 32-26 |

### 32-25. GUNNER'S GUARD REMOVAL PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
9/16" socket (1/2" drive)
1/2" drive ratchet

PERSONNEL: Two

EQUIPMENT LOCATION INFORMATION:

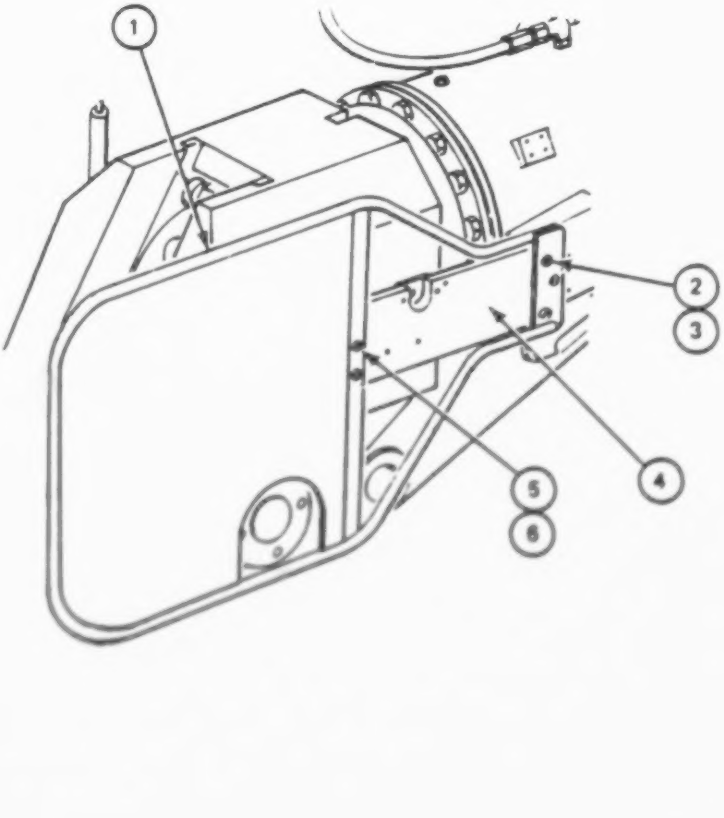
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Guard | FO-1 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-25. GUNNER'S GUARD REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold gunner's guard (1). |
| 2. | Soldier B: Using 3/4" socket wrench, remove three screws (2) and three lockwashers (3) that attach gunner's guard (1) to support bracket (4). |
| 3. | Soldier B: Using 9/16" socket wrench, remove two screws (5) and two lockwashers (6) that attach gunner's guard (1) to support bracket (4). |
| 4. | Soldier A: Remove gunner's guard (1). |
|  | END OF TASK |



## 32-26. GUNNER'S GUARD INSTALLATION PROCEDURE

TOOLS: 3/4" socket (1/2" drive)
9/16" socket (1/2" drive)
1/2" drive ratchet
1/2" drive torque wrench (0 to 250 foot-pounds)

PERSONNEL: Two

REFERENCES: JPG for procedure to use torque wrench

EQUIPMENT LOCATION INFORMATION:

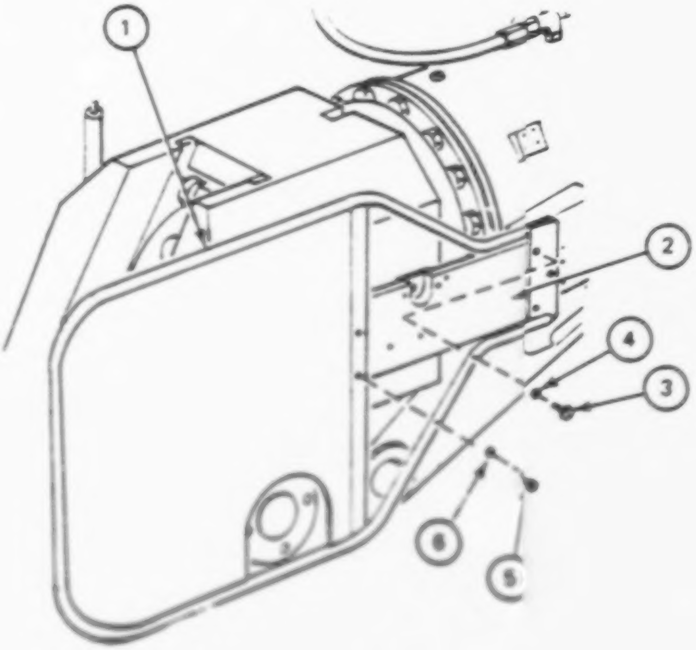
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Gunner's Guard | FO-1 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 32-26. GUNNER'S GUARD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold gunner's guard (1) in place on support bracket (2). |
| 2. | Soldier B: Using 3/4" socket wrench attach gunner's guard (1) to support bracket (2) with three screws (3) and three lockwashers (4). |
| 3. | Soldier B: Using 9/16" socket wrench, attach gunner's guard (1) to support bracket (2) with two screws (5) and two lockwashers (6). |
| 4 | Soldier B: Using torque wrench, torque three screws (3) to between 70 and 90 foot-pounds (JPG). |
| | END OF TASK |



# CHAPTER 33

# NYLON BALLISTIC SHIELD

## 33-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | |
|---|---|---|
| Equipment Item | Removal | Installation |
| Nylon Ballistic Shield | 33-2 | 33-3 |

## 33-2. NYLON BALLISTIC SHIELD REMOVAL PROCEDURE

TOOLS:
- 7/16 in. socket (3/8 in. drive)
- 9/16 in. socket (3/8 in. drive)
- 5 in. extension (3/8 in. drive)
- 3/8 in. drive ratchet

PERSONNEL: One

REFERENCE: TM 9-2350-222-10 for procedures to:
- Remove 7.62-mm spent cartridge case bag
- Remove 7.62-mm machine gun
- Position 165-mm gun level

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION:
- Driver's master control panel MASTER BATTERY switch set to OFF
- 7.62-mm machine gun removed (TM-10)
- 7.62-mm spent cartridge case bag removed (TM-10)
- 165-mm gun level (TM-10)

PRELIMINARY PROCEDURES:
- Remove M105F telescope (para 57-2) TM 20-2-3-3
- Remove 7.62-mm machine gun bracket (para 35-2)
- Remove M240 machine gun deflector plate (if equipped) (para 35-11

GENERAL INSTRUCTIONS:

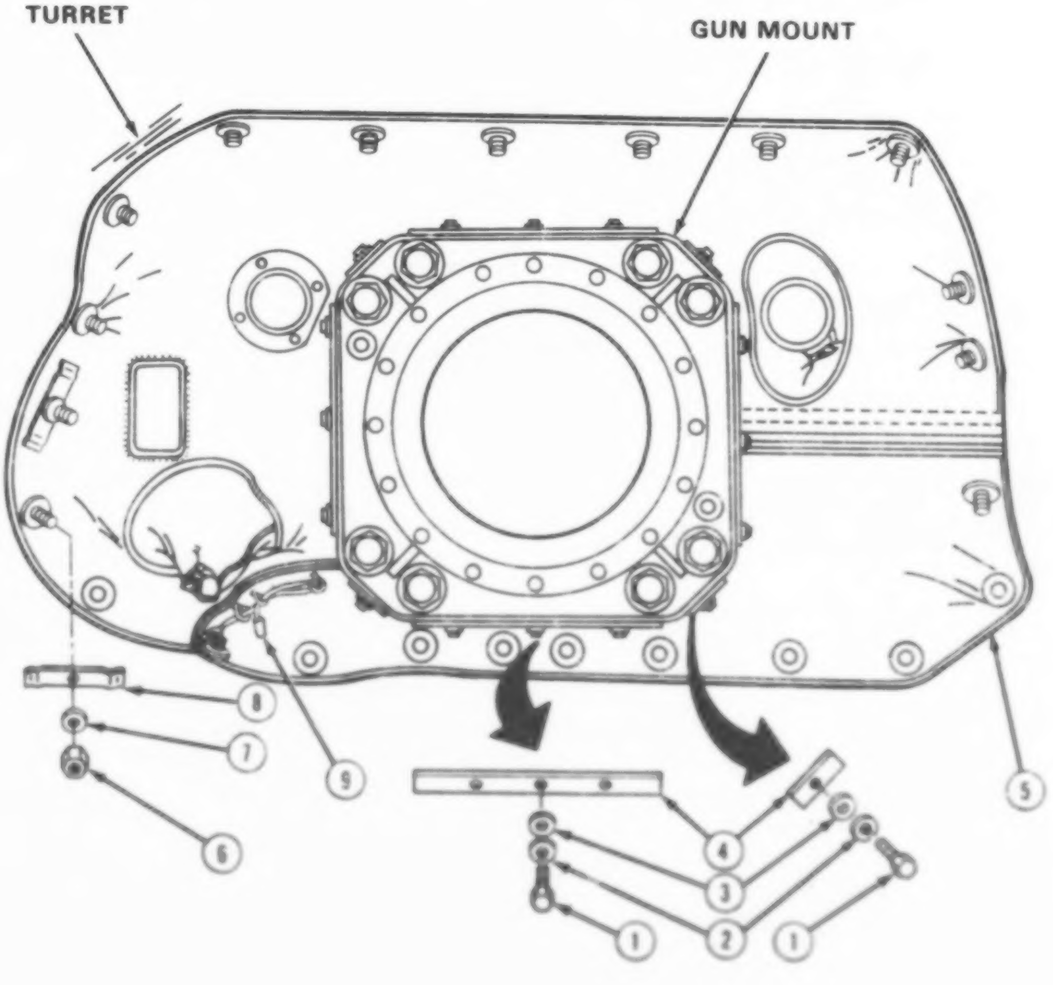
**NOTE**

**Notify support personnel to remove ballistic drive trunnion link and ballistic drive temperature compensating link.**

## 33-2. NYLON BALLISTIC SHIELD REMOVAL PROCEDURE (CONT)

**FRAME 1**

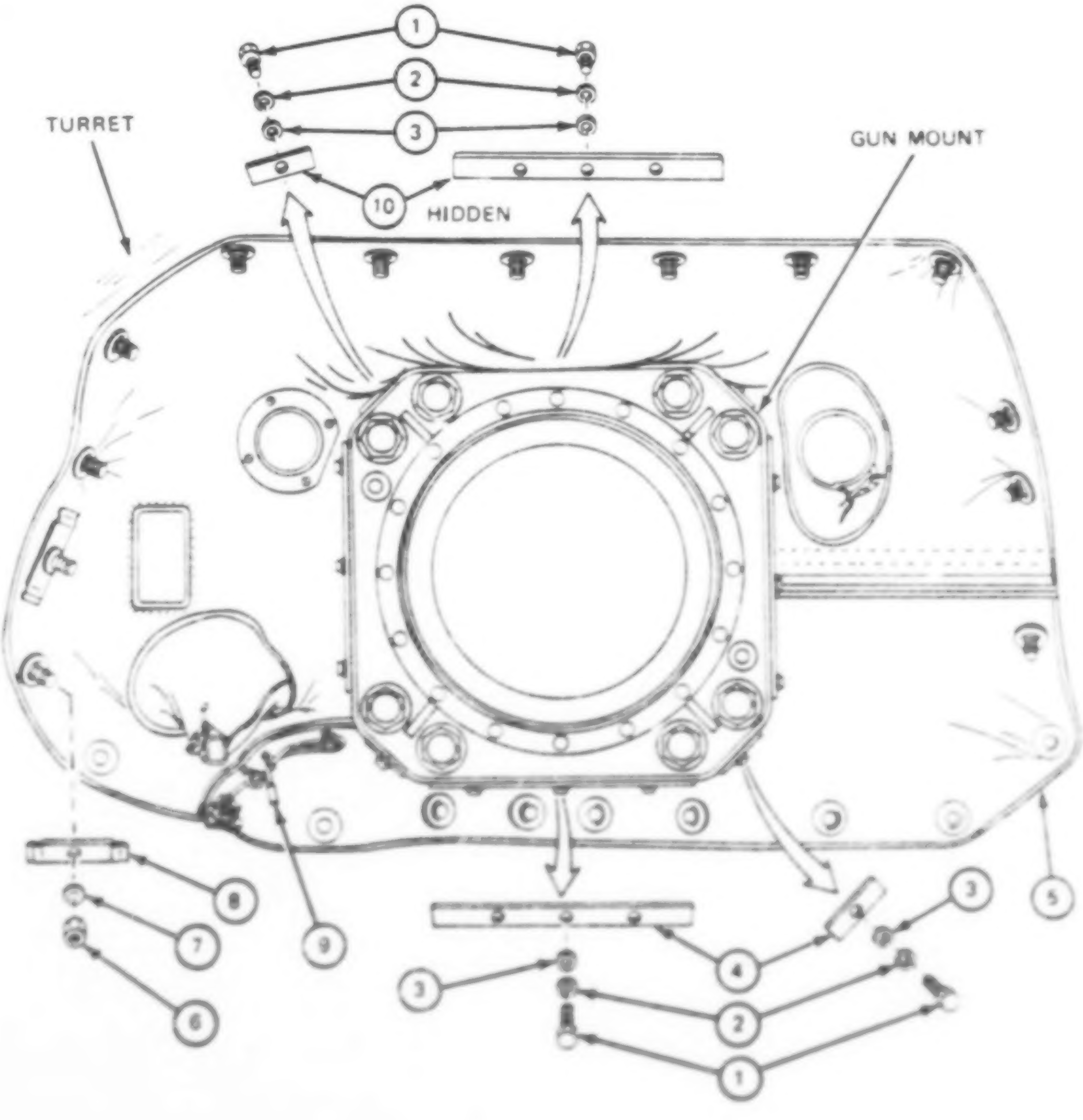
| STEP | PROCEDURE |
|---|---|
|  | **NOTE**<br>**Do frame 1 when top screws (1) attaching nylon ballistic shield to gun mount can be seen.**<br>**Do frame 2 when top screws (1) attaching nylon ballistic shield to gun mount cannot be seen.** |
| 1. | Using 7/16 inch socket wrench with extension, remove sixteen screws (1), sixteen lockwashers (2), sixteen flat washers (3), and eight metal strips (4) holding nylon ballistic shield (5) to gun mount. |
| 2. | Using 9/16 inch socket wrench with extension, remove twenty-three nuts (6), flat washers (7), metal clips (8) holding nylon ballistic shield (5) to turret. |
| 3. | Remove lacing (9) at lower left of nylon ballistic shield (5). |
| 4. | Open nylon ballistic shield (5) at split where lacing (9) was tied. Work shield over gun mount toward right side of gun mount. |
| 5. | Remove ballistic shield (5). |
|  | **END OF TASK** |


TURRET
GUN MOUNT

## 33-2. NYLON BALLISTIC SHIELD REMOVAL PROCEDURE (CONT)

FRAME 2

| STEP | PROCEDURE |
|---|---|
| 1. | Using 7/16 inch socket wrench with extension, remove eleven screws (1) lockwashers (2) flat washers (3) and five metal strips (4) holding nylon ballistics shield (5) to gun mount. |
| 2. | Using 9/16 inch socket wrench with extension, remove twenty-three nuts (6), flat washers (7), and metal clips (8) holding nylon ballistic shield (5) to turret. |
| 3. | Remove lacing (9) at lower left of nylon ballistic shield (5). |
| 4. | Open nylon ballistic shield (5) at split where lacing (9) was tied. |
| 5. | Fold upper section of nylon ballistic shield (5) down on top of gun mount. |
| 6. | Using 7/16 inch socket wrench with extension, remove five screws (1), five lockwashers (2), five flat washers (3), and three metal strips (10) holding nylon ballistic shield (5) to gun mount. |
| 7. | Work nylon ballistic shield (5) over gun mount toward right side. |
| 8. | Remove ballistic shield (5). |
|  | **END OF TASK** |


TURRET
HIDDEN
GUN MOUNT

## 33-3. NYLON BALLISTIC SHIELD INSTALLATION PROCEDURE

TOOLS:
- 7/16 in. socket (3/8 in. drive)
- 9/16 in. socket (3/8 in. drive)
- 5 in. extension (3/8 in. drive)
- 3/8 in. drive ratchet

PERSONNEL: One

REFERENCE: TM 9-2350-222-10 for procedures to:
- Install 7.62-mm spent cartridge case bag
- Install 7.62-mm machine gun
- Place 165-mm gun level

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

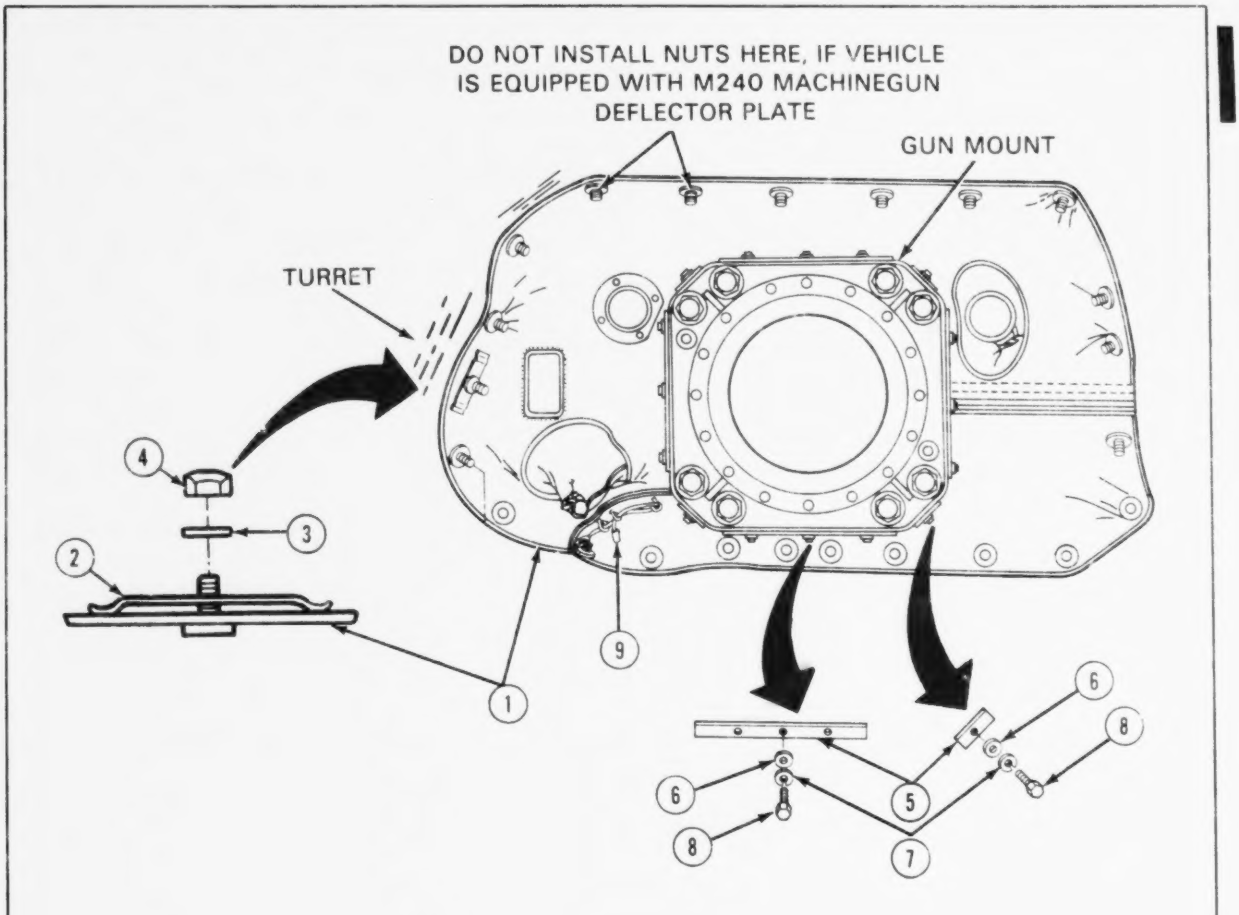
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Position 165-mm gun level (TM-10)

best copy available

## 33-3. NYLON BALLISTIC SHIELD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Starting at right side of gun mount, work nylon ballistic shield (1) over gun mount until holes in shield are lined up with attaching studs on turret. |
| | **NOTE**<br>**Do not install nuts where M240 machine gun deflector plate is to be installed.** |
| 2. | Put twenty-three metal clips (2), flat washers (3), and nuts (4) on turret studs. |
| 3. | Using 9/16 inch socket wrench with extension, tighten twenty-three nuts (4) holding ballistic shield (1) to turret. |
| 4. | Line up holes in ballistic shield (1) with holes in gun mount. |
| | **NOTE**<br>**Metal strips holding ballistic shield to gun mount have part numbers stamped on them as follows:**<br>**Top and bottom strips - 10916201**<br>**Side strips - 10916200**<br>**Corner strips - 10916199** |
| 5. | Put in eight metal strips (5), sixteen flat washers (6), sixteen lockwashers (7), and sixteen screws (8) holding ballistic shield (1) to gun mount. |
| 6. | Using 7/16 inch socket wrench with extension, tighten 16 screws (8) to gun mount. |
| 7. | Join split at lower left of ballistic shield (1) by putting loops through holes. |
| 8. | Put nylon lacing (9) through all loops except last loop. Insert lacing back through last two loops, as shown. |
| | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install M240-machine gun deflector plate (if equipped) (para 35–12)**<br>**Install 7.62-mm machine gun bracket (para 35-3).**<br>**Install 7.62-mm machine gun (TM-10).**<br>**Install 7.62-mm spent cartridge case bag (TM-10).**<br>**Install M105F telescope (para 57-3).** TM 20-2-3-3<br>**Notify support personnel to install ballistics drive temperature compensating link and ballistics drive trunnion link.** |
| | **END OF TASK** |


DO NOT INSTALL NUTS HERE, IF VEHICLE IS EQUIPPED WITH M240 MACHINEGUN DEFLECTOR PLATE
GUN MOUNT
TURRET
LEFT SIDE VIEW
LOOP
LOOPS

# CHAPTER 34

# GUN SHIELD (MANTLET) COVER

## 34-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | |
|---|---|---|
| Equipment Item | Removal | Installation |
| Gun Shield (Mantlet) Cover | 34-2 | 34-3 |

## 34-2. GUN SHIELD (MANTLET) COVER REMOVAL PROCEDURE

TOOLS: Flat tip screwdriver
7/16'' socket (3/8'' drive)
5'' extension (3/8'' drive)
3/8'' drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Remove 7.62 mm machine gun
Manually elevate or depress 165 mm gun
Remove xenon searchlight and mounts
Traverse turret
Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

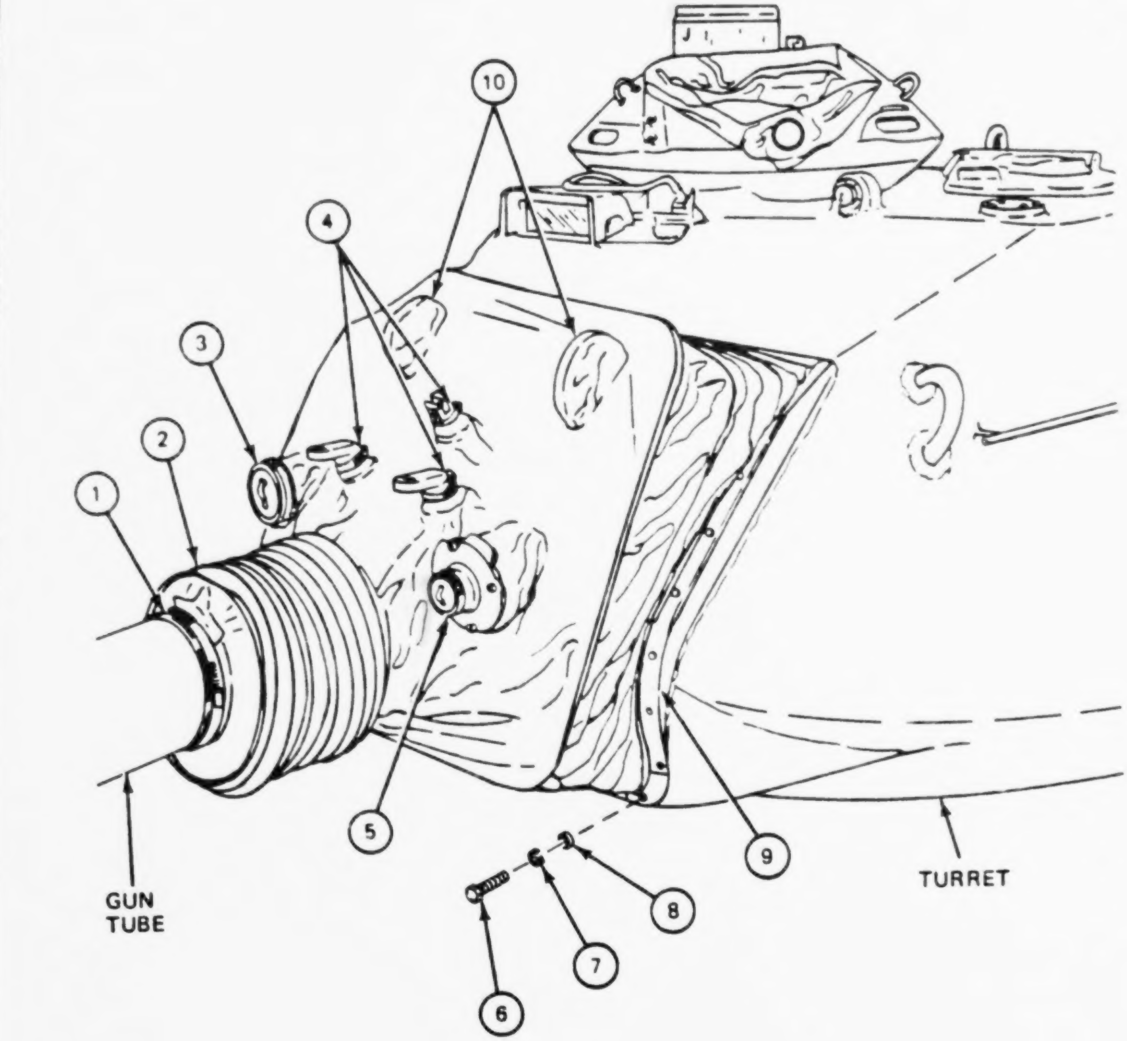
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
7.62-mm machine gun removed (TM-10)
Xenon searchlight and mounts removed (TM-10)

## 34-2. GUN SHIELD (MANTLET) COVER REMOVAL PROCEDURE (CONT)

FRAME 1

| Step | Procedure |
|---|---|
| 1. | Manually elevate 165-mm gun and traverse turret so that gun is positioned over left front fender of vehicle (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Using screwdriver, remove clamp (1) holding gun shield cover (2) to 165-mm gun tube. |
| 4. | Using screwdriver, remove clamp (3) holding telescope port cover. Remove telescope port cover. |
| 5. | Using screwdriver, remove three clamps (4) holding gun shield cover (2) to xenon searchlight mounting brackets. |
| 6. | Using screwdriver, remove clamp (5) holding 7.62-mm machine gun port cover. Remove gun port cover. |
| 7. | Using socket wrench, remove thirty five screws (6), thirty five lockwashers (7), and thirty five flat washers (8) holding gun shield cover (2) to turret. |
| 8. | Remove six metal strips (9) from gun shield cover (2). |
| 9. | Using hands, unsnap gun shield cover fasteners (10) holding cover to gun shield lifting eyes. |
| 10. | Work gun shield cover (2) loose from turret and slide cover forward over gun tube. Remove cover from gun tube.<br>END OF TASK |


GUN TUBE
TURRET

## 34-3. GUN SHIELD (MANTLET) COVER INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver
7/16" socket (3/8" drive)
5" extension (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
- Install xenon searchlight and mounts
- Install 7.62-mm machine gun
- Manually elevate or depress 165-mm gun
- Traverse turret
- Set turret traverse lock to LOCKED

EQUIPMENT LOCATION INFORMATION:

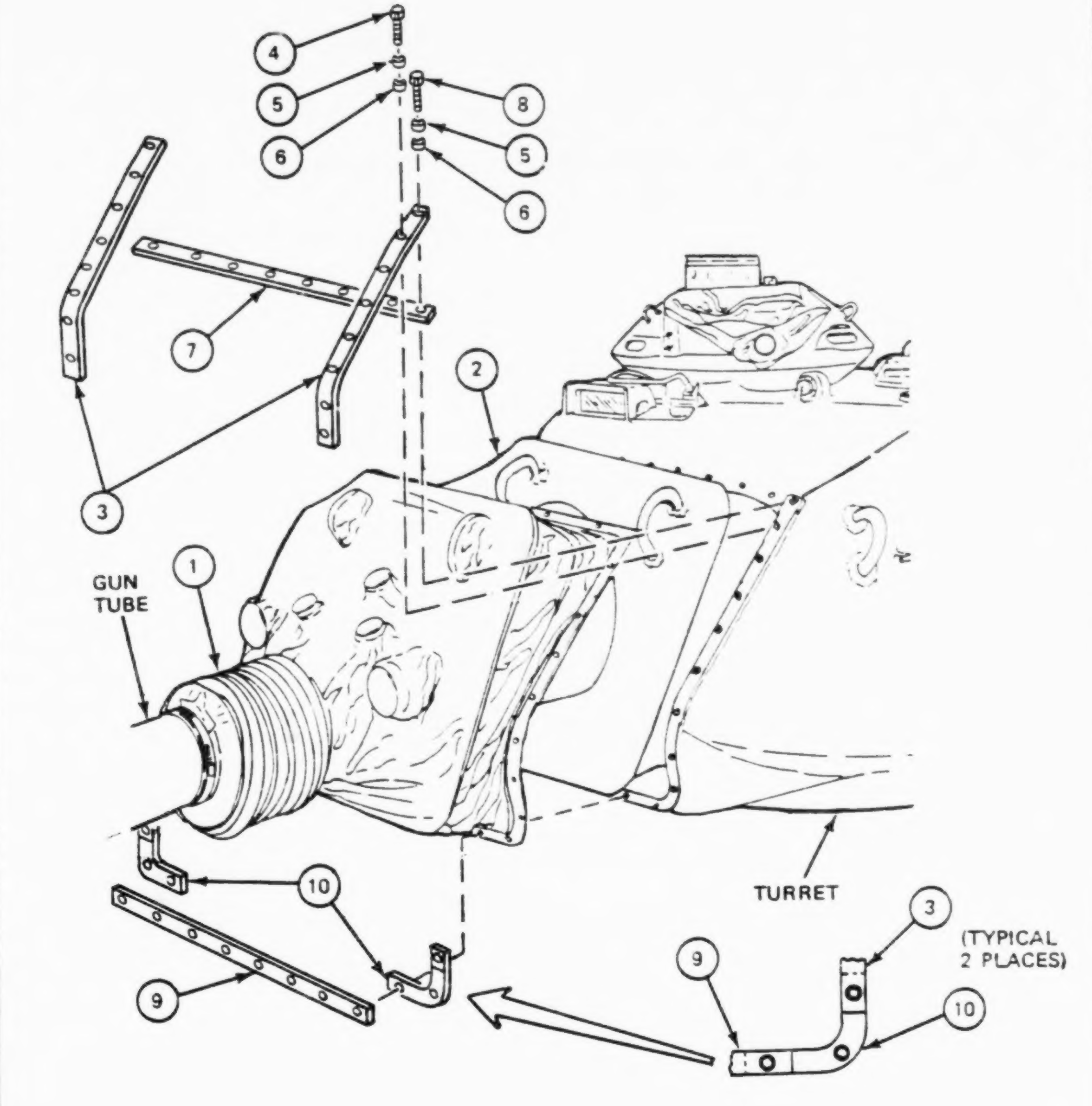
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 34-3. GUN SHIELD (MANTLET) COVER INSTALLATION PROCEDURE (CONT)

**FRAME 1**

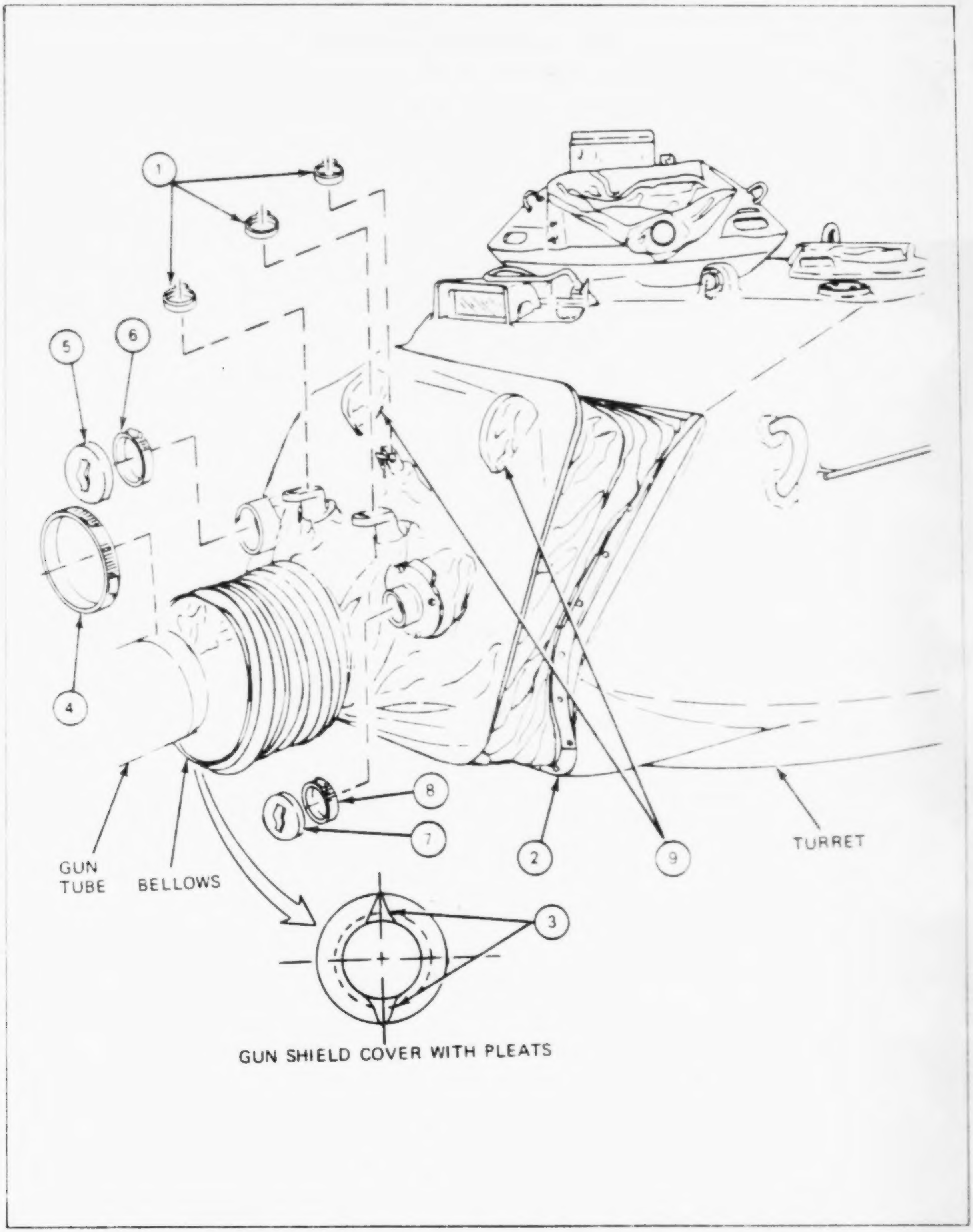
| Step | Procedure |
|---|---|
| 1. | Manually elevate 165-mm gun and traverse turret so that gun is positioned over left front fender of vehicle (TM-10). |
| 2. | Set turret traverse lock to LOCKED (TM-10). |
| 3. | Put gun shield cover (1) over end of gun tube and slide cover toward turret. |
| 4. | Fit cover (1) over telescope, machine gun ports, searchlight brackets, and lifting eyes on gun shield (2). |
| 5. | Line up screw holes in cover (1) with holes in turret. |
| 6. | Put metal strap (3) in place over right side of cover (1). |
|  | **NOTE**<br>There are thirty five screws that hold the cover to the turret. Of these thirty five screws, ten are shorter and are installed across the top row. |
| 7. | Put screw (4) with lockwasher (5) and flat washer (6) in all screw holes of metal strap (3), except end holes. |
| 8. | Repeat steps 6 and 7 for metal strap (3) over left side of cover (1). |
| 9. | Put metal strap (7) in place over top part of cover (1) and under ends of left and right metal straps (3). |
| 10. | Using hand, put screw (8) with lockwasher (5) and flat washer (6) in all screw holes of metal strap (7). |
|  | **NOTE**<br>If necessary, manually depress gun to do steps 11 and 12 (TM-10). |
| 11. | Put metal strap (9) in place over bottom part of cover. Repeat step 7. |
| 12. | Put metal straps (10) in place over lower corners of cover (1) under metal straps (3) and (9). Repeat step 10. |
| 13. | Using socket wrench, tighten all thirty five screws.<br>GO TO FRAME 2 |


GUN TUBE
TURRET
(TYPICAL 2 PLACES)

## 34-3. GUN SHIELD (MANTLET) COVER INSTALLATION PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, put on three clamps (1) holding gun shield cover (2) to xenon searchlight mounting brackets.<br>**NOTE**<br>If gun shield cover has two pleats, do step 2. If not, go to step 3. |
| 2. | Using hands, fold down two pleats (3) to make water-tight area when bellows is clamped to gun. |
| 3. | Using screwdriver, put on clamp (4) holding gun shield cover (2) to gun tube. |
| 4. | Place telescope cover (5) over port in gun shield cover (2). Using screwdriver, put on clamp (6) holding telescope cover to gun shield port. |
| 5. | Place 7.62-mm machine gun cover (7) over port in gun shield cover (2). Using screwdriver, put on clamp (8) holding machine gun cover to gun shield port. |
| 6. | Snap gun shield cover fasteners (9) holding cover to gun shield lifting eyes. |
| 7. | Manually elevate and depress gun (TM-10). Check that gun shield cover does not bind through full range of gun elevation and depression.<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install xenon searchlight and mounts (TM-10).<br>Install 7.62-mm machine gun (TM-10).<br>END OF TASK |


GUN TUBE
BELLOWS
TURRET
GUN SHIELD COVER WITH PLEATS

# CHAPTER 35

# 7.62-MM MACHINE GUN MOUNT

## 35-1. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | | |
|---|---|---|---|---|---|
| **Equipment Item** | **Removal** | **Installation** | **Disassembly** | **Assembly** | **Adjustment** |
| M219 Machine Gun Mount | 35-2 | 35-3 | 35-4 | 35-5 | |
| M240 Machine Gun Mount | 35-6 | 35-7 | 35-8 | 35-9 | 35-10 |
| M240 Machine Gun Deflector Plate | 35-11 | 35-12 | | | |

## 35-2. M219 MACHINE GUN MOUNT REMOVAL PROCEDURE

TOOLS:
- 3/4 in. combination wrench
- 1/2 in. combination wrench
- 7/16 in. combination wrench
- 5/32 in. socket head screw key (Allen wrench)

REFERENCES: TM 9-2350-222-10 for procedures to:
- Remove 7.62-mm machine gun
- Remove cartridge bag
- Remove nylon ejection shield

EQUIPMENT LOCATION INFORMATION:

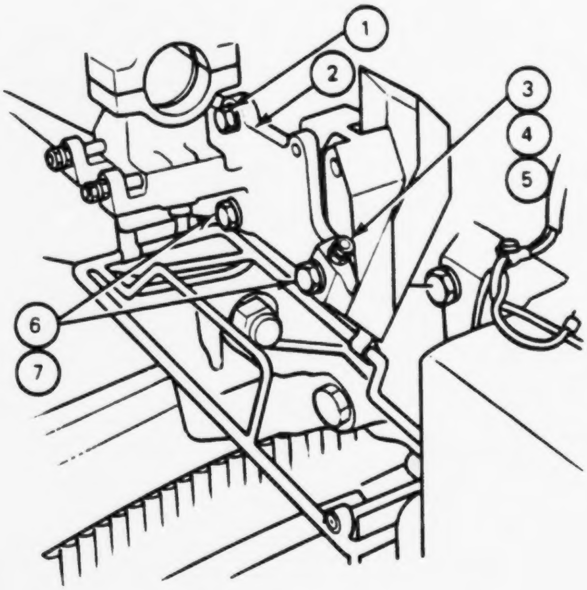
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Machine Gun Mount | FO-4 | 5 |

EQUIPMENT CONDITION:
- Driver's master control panel MASTER BATTERY switch set to OFF
- 7.62-mm machine gun removed (TM-10)
- Cartridge bag removed (TM-10)
- Nylon ejection shield removed (TM-10)

## 35-2. M219 MACHINE GUN MOUNT REMOVAL PROCEDURE (CONT)

**FRAME 1**

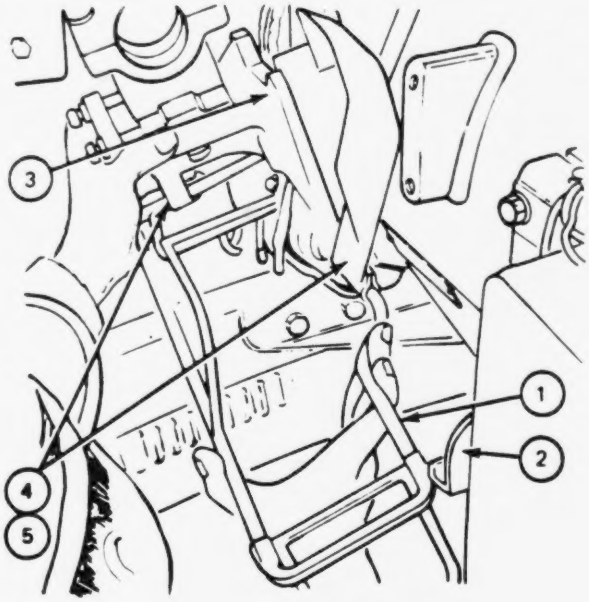
| Step | Procedure |
|---|---|
| 1. | Using 3/4" wrench, remove pivot screw (1) from upper part of mount (2).<br>**NOTE**<br>On some tanks, self-locking nut (3) and setscrew (5) are one piece. Allen wrench is not used. |
| 2. | Using 1/2" wrench and Allen wrench, loosen two self-locking nuts (3), two nuts (4), and two setscrews (5). |
| 3. | Using 3/4" wrench, remove two self-locking bolts (6) and two flat washers (7). Throw away two self-locking bolts (6).<br>GO TO FRAME 2 |



## 35-2. M219 MACHINE GUN MOUNT REMOVAL PROCEDURE (CONT)

**FRAME 2**

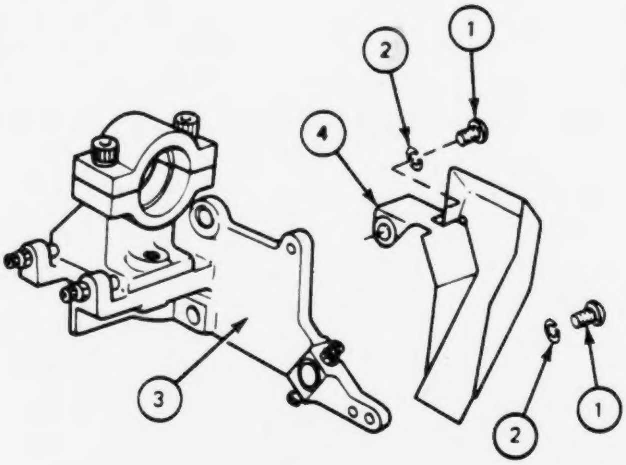
| Step | Procedure |
|---|---|
| 1. | Rest support (1) on support bracket (2). |
| 2. | Remove machine gun mount (3) from position. |
| 3. | Using 7/16" combination wrench remove two screws (4) and two lockwashers (5) holding support (1) to machine gun mount (3). |
| 4. | Remove support (1). |
|  | GO TO FRAME 3 |



## 35-2. M219 MACHINE GUN MOUNT REMOVAL PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Using 7/16" combination wrench, remove two screws (1) and two lockwashers (2). |
| 2. | Separate machine gun mount (3) from deflector plate (4).<br>END OF TASK |



## 35-3. M219 MACHINE GUN MOUNT INSTALLATION PROCEDURE

TOOLS: 3/4" combination wrench
1/2" combination wrench
7/16" combination wrench
5/32" socket head screw key (Allen wrench)

SUPPLIES: Self-locking bolts (10870909) (two)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Install 7.62-mm machine gun
Install cartridge bag
Install nylon ejection shield

EQUIPMENT LOCATION INFORMATION:

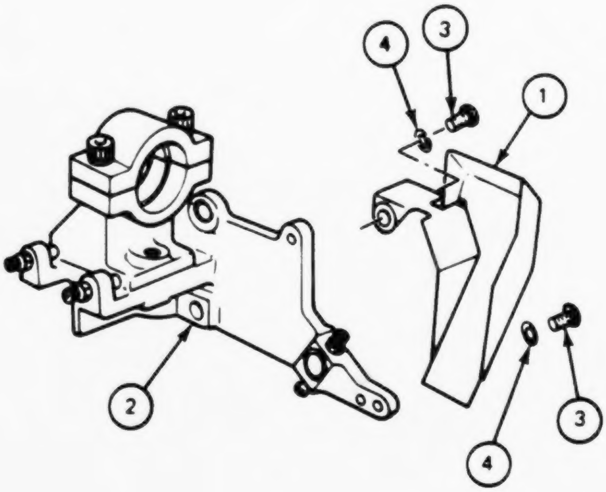
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Machine Gun Mount | FO-4 | 5 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to **OFF**

## 35-3. M219 MACHINE GUN MOUNT INSTALLATION PROCEDURE (CONT)

**FRAME 1**

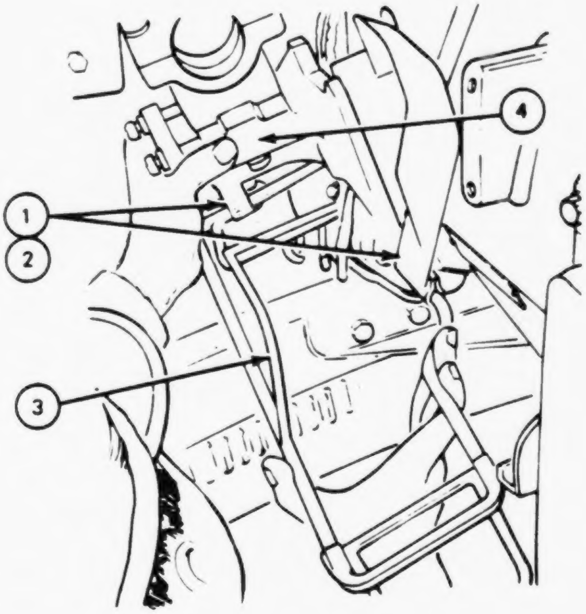
| Step | Procedure |
|---|---|
| 1. | Place deflector plate (1) on machine gun mount (2). |
| 2. | Using 7/16″ wrench, put in two screws (3) and two lockwashers (4) to hold deflector plate (1) to machine gun mount (2).<br>GO TO FRAME 2 |



## 35-3. M219 MACHINE GUN MOUNT INSTALLATION PROCEDURE (CONT)

**FRAME 2**

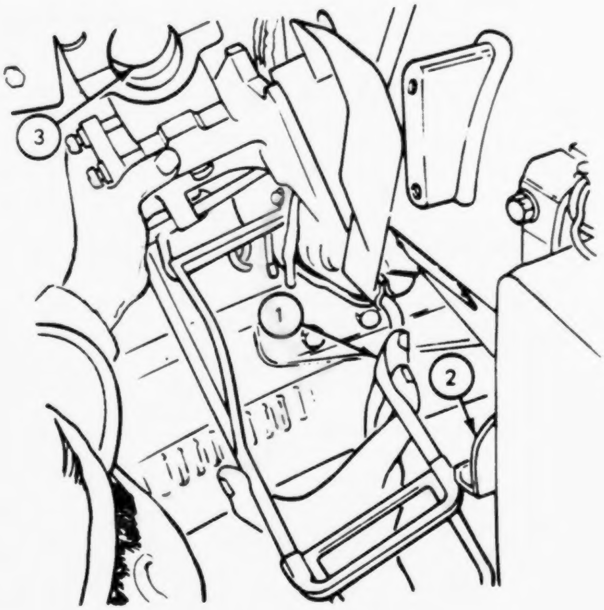
| Step | Procedure |
|---|---|
| 1. | Using 7/16" wrench, put in two screws (1) and two lockwashers (2) to hold support (3) to machine gun mount (4).<br>GO TO FRAME 3 |



## 35-3. M219 MACHINE GUN MOUNT BRACKET INSTALLATION PROCEDURE (CONT)

**FRAME 3**

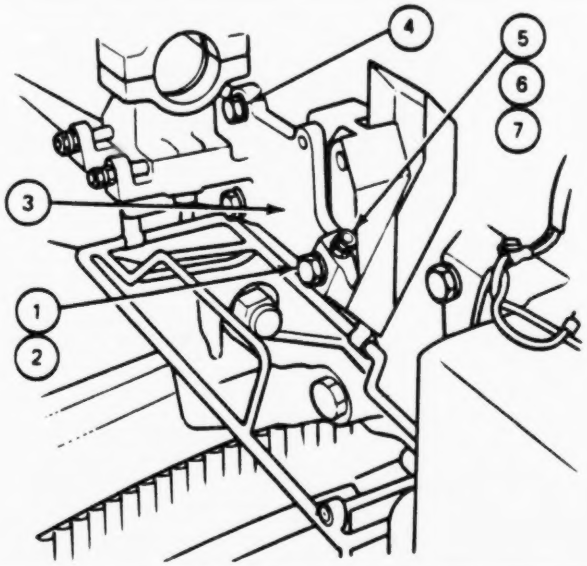
| Step | Procedure |
|---|---|
| 1. | Rest support (1) on support bracket (2). |
| 2. | Position machine gun mount (3) for installation.<br>GO TO FRAME 4 |



## 35-3. M219 MACHINE GUN MOUNT INSTALLATION PROCEDURE (CONT)

**FRAME 4**

| Step | Procedure |
|---|---|
| 1. | Using 3/4" wrench, put in two new self-locking bolts (1) and two flat washers (2) to hold machine gun mount (3) to combination gun mount. |
| 2. | Using 3/4" wrench, put pivot screw (4) in upper part of machine gun mount (3). |
|  | **NOTE**<br>On some tanks, self-locking nut (6) and setscrew (7) are one piece. Allen wrench is not used. |
| 3. | Using 1/2" wrench and Allen wrench, tighten two nuts (5), two self-locking nuts (6), and two setscrews (7). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install 7.62-mm machine gun (TM-10).<br>Install empty cartridge bag (TM-10).<br>Install nylon ejection shield (TM-10). |
|  | END OF TASK |



## 35-4. M219 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE

TOOLS: 3/4" combination wrench
1/2" combination wrench
3/8" socket head screw key (Allen wrench)
5/32" socket head screw key (Allen wrench)

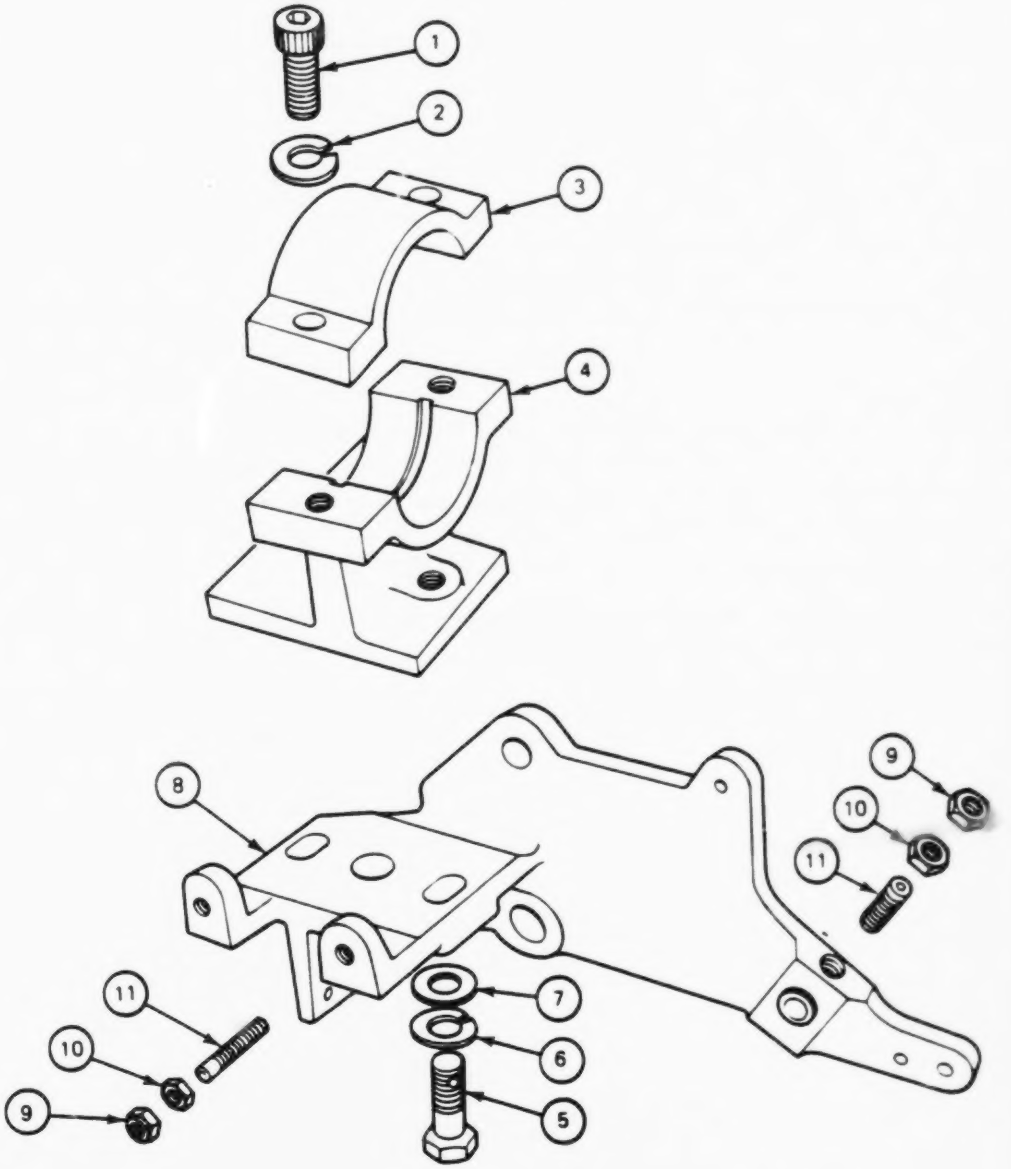
PERSONNEL: One

PRELIMINARY PROCEDURES: Remove M219 machine gun mount (para 35-2)

## 35-4. M219 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using 3/8" Allen wrench, remove two screws (1) and two lockwashers (2). Remove retainer (3) from bracket (4). |
| 2. | Using 3/4" combination wrench, remove two screws (5), two lockwashers (6), and two flat washers (7). |
| 3. | Remove bracket (4) from mount (8).<br>**NOTE**<br>On some tanks, self-locking nut (9) and setscrew (11) are one piece. Allen wrench is not used. |
| 4. | Using 1/2" combination wrench and 5/32" Allen wrench, remove four self-locking nuts (9), four nuts (10), and four setscrews (11). Throw away self-locking nuts.<br>END OF TASK |



## 35-5. M219 MACHINE GUN MOUNT ASSEMBLY PROCEDURE

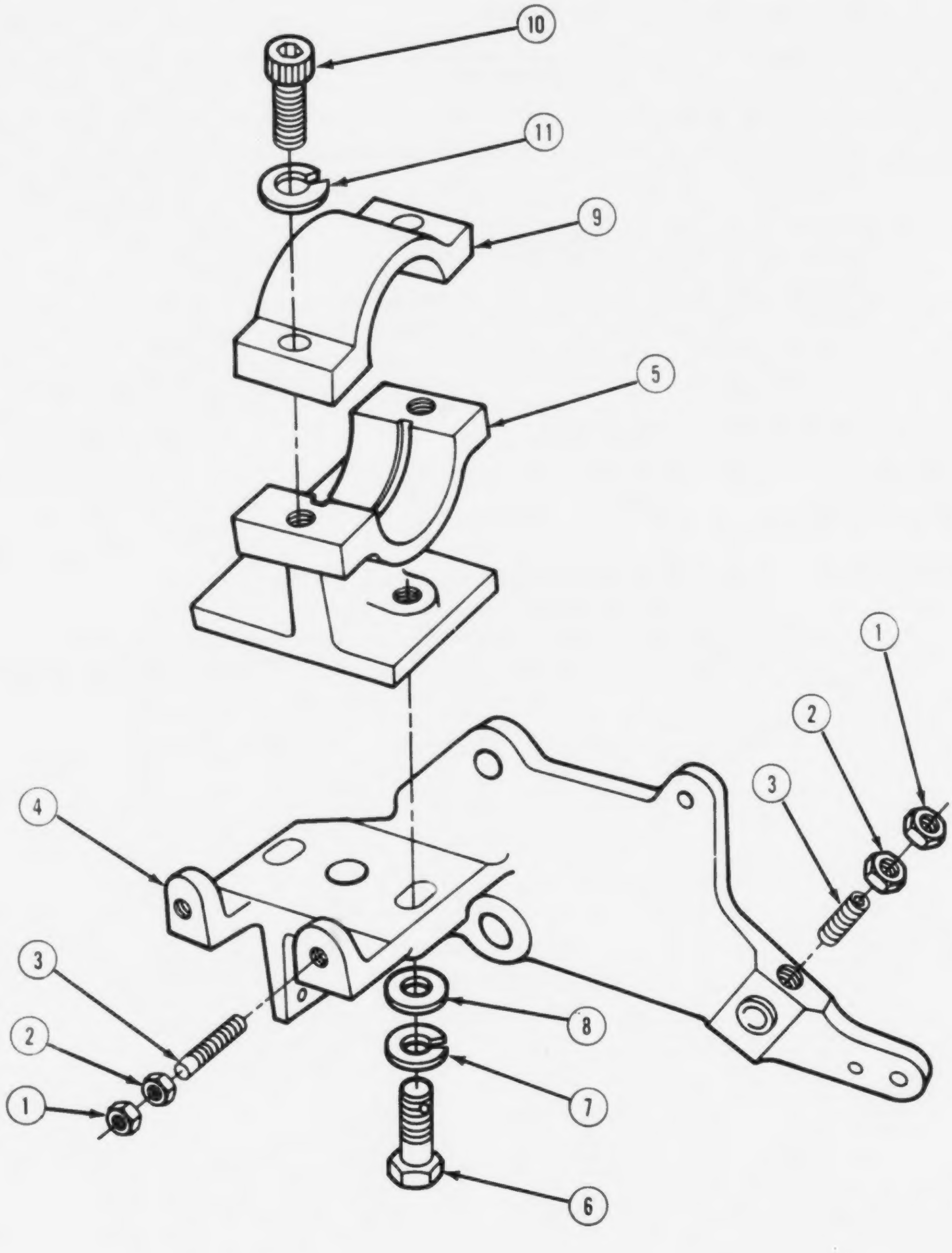
TOOLS: 3/4" combination wrench
1/2" combination wrench
3/8" socket head screw key (Allen wrench)
5/32" socket head screw key (Allen wrench)

SUPPLIES: Self-locking nuts (MS 21083-N-5) (four)

PERSONNEL: One

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>On some tanks, self-locking nuts (1) and setscrew (3) are one piece. Allen wrench is not used. |
| 1. | Using 1/2" combination and 5/32" Allen wrench, put four new self-locking nuts (1), four plain nuts (2), and four setscrews (3) in mount (4). |
| 2. | Place bracket (5) on mount (4). |
| 3. | Using 3/4" combination wrench, put in two screws (6), two lockwashers (7) and two flat washers (8) to hold bracket (5) to mount (4). |
| 4. | Place retainer (9) on bracket (5). |
| 5. | Using 3/8" Allen wrench, put in two screws (10) and two lockwashers (11) to hold retainer (9) to bracket (5). |
| | END OF TASK |



## 35-6. M240 MACHINE GUN MOUNT REMOVAL PROCEDURE

TOOLS:
Diagonal cutting pliers
3/16 in. socket head screw key (Allen wrench)
3/4 in. socket (1/2 in. drive)
1/2 in. drive ratchet
1/2 in. drive hinged handle
5 in. extension (1/2 in. drive)

PERSONNEL: Two

REFERENCE:
TM 9-2350-222-10 for procedures to:
  Remove 7.62-mm machine gun
  Remove and install 7.62-mm mount travel lock
  Remove 7.62-mm spent cartridge case bag
JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

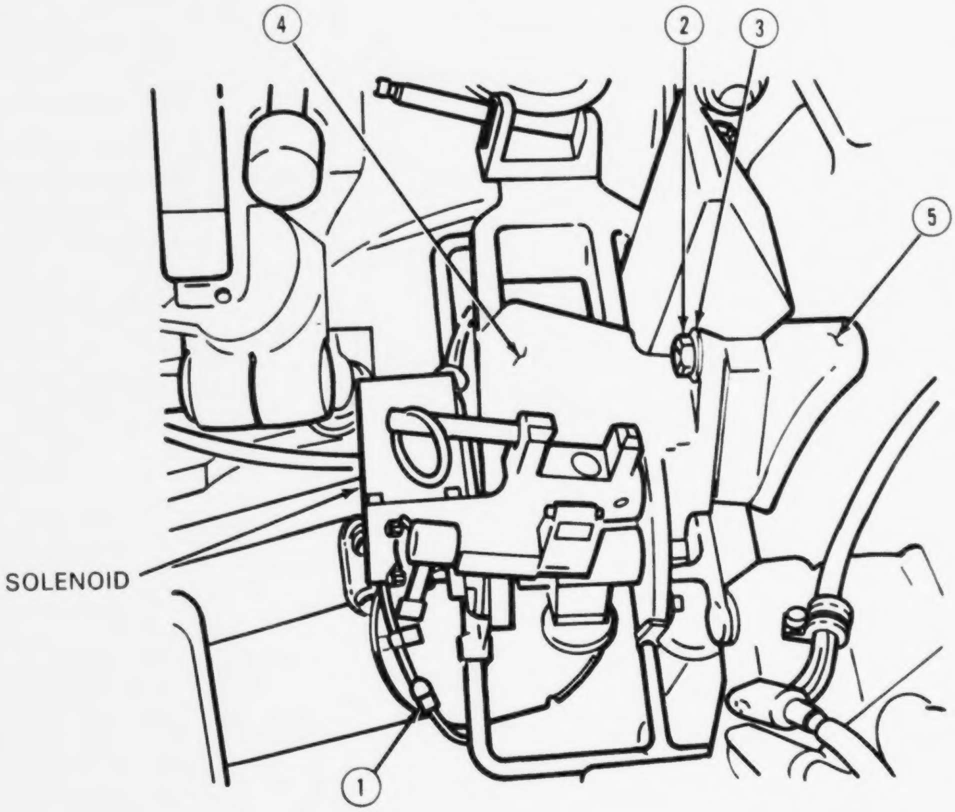
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Machine Gun Mount | FO-4 | 5 |

EQUIPMENT CONDITION:
7.62-mm mount travel lock removed (TM-10)
7.62-mm machine gun removed (TM-10)
7.62-mm spent cartridge case bag removed (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 35-6. M240 MACHINE GUN MOUNT REMOVAL PROCEDURE (CONT)

**FRAME 1**

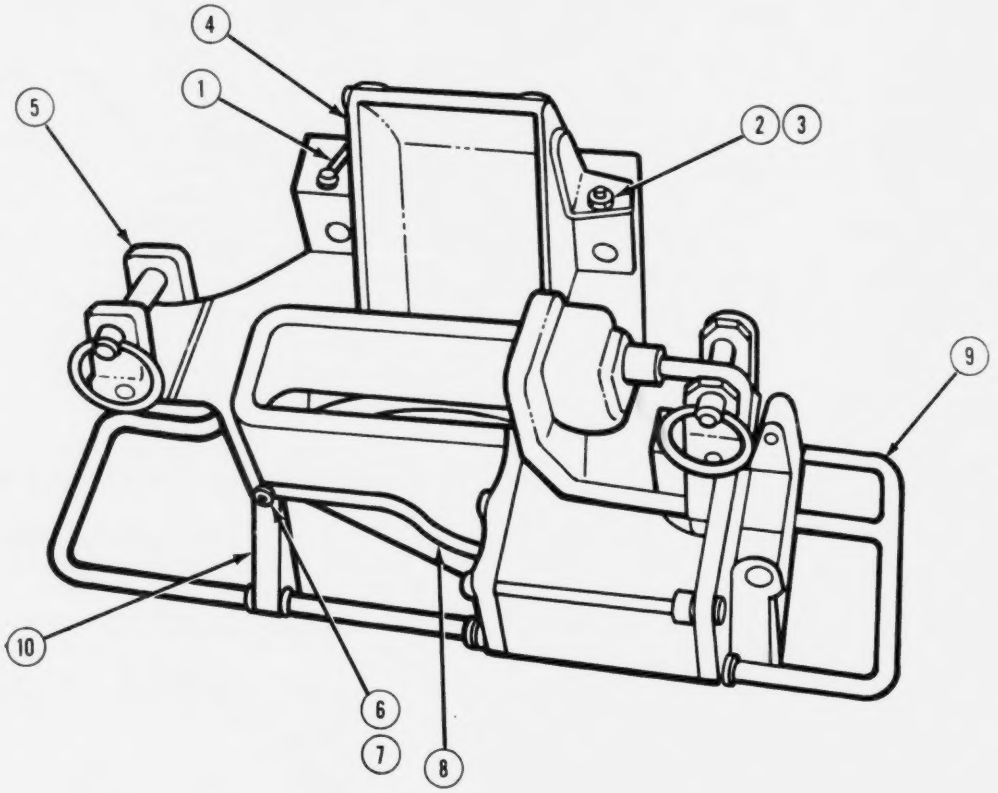
| STEP | PROCEDURE |
|---|---|
| 1. | Disconnect solenoid electrical connector (1) from vehicle electrical connector (JPG).<br>**WARNING**<br>**Machine gun mount is heavy and will hurt you if it falls on you.** |
| 2. | Using socket wrench, remove four screws (2) and four flat washers (3) that attach machine gun mount (4) to combination gun mount (5) on main gun. |
| 3. | Remove machine gun mount (4).<br>**GO TO FRAME 2** |



## 35-6. M240 MACHINE GUN MOUNT REMOVAL PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>**If gun mount (1), cartridge bag support (2) or deflector (3) are to be replaced, do this frame.** |
| 1. | Using pliers, remove lockwire (4) from two screws (5). |
| 2. | Using Allen wrench, remove two screws (5), and deflector (3) from gun mount (5). |
| 3. | Using Allen wrench, remove four screws (6), four lockwashers (7), and solenoid ground wire (8) that attach cartridge bag support (2) to gun mount (1). Remove cartridge bag support (2). |
| 4. | Remove four brackets (9) from cartridge bag support (2). |
| | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install 7.62-mm mount travel lock (TM-10).** |
| | **END OF TASK** |


2 3

## 35-7. M240 MACHINE GUN MOUNT INSTALLATION PROCEDURE

TOOLS:
- 3/4 in. socket (1/2 in. drive)
- 1/2 in. drive torque wrench (0 to 250 foot-pounds)
- 3/4 in. combination wrench
- Needle nose pliers
- 3/16 in. socket head screw key (Allen wrench)
- 3/16 in. hex head socket (3/8 in. drive)
- 3/8 in. drive torque wrench (0 to 50 foot-pounds)
- 1/2 in. drive ratchet

SUPPLIES:
- Lockwire
- Screws (MS18153-113) (four)

PERSONNEL: Two

REFERENCES:
- TM 9-2350-222-10 for procedures to:
  - Install 7.62-mm spent cartridge case bag
  - Install 7.62-mm machine gun
  - Remove 7.62-mm mount travel lock
  - Boresight and zero 7.62-mm machine gun
  - Check operation of 7.62-mm machine gun firing circuit
- JPG for procedures to:
  - Use torque wrench
  - Install lockwire
  - Connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

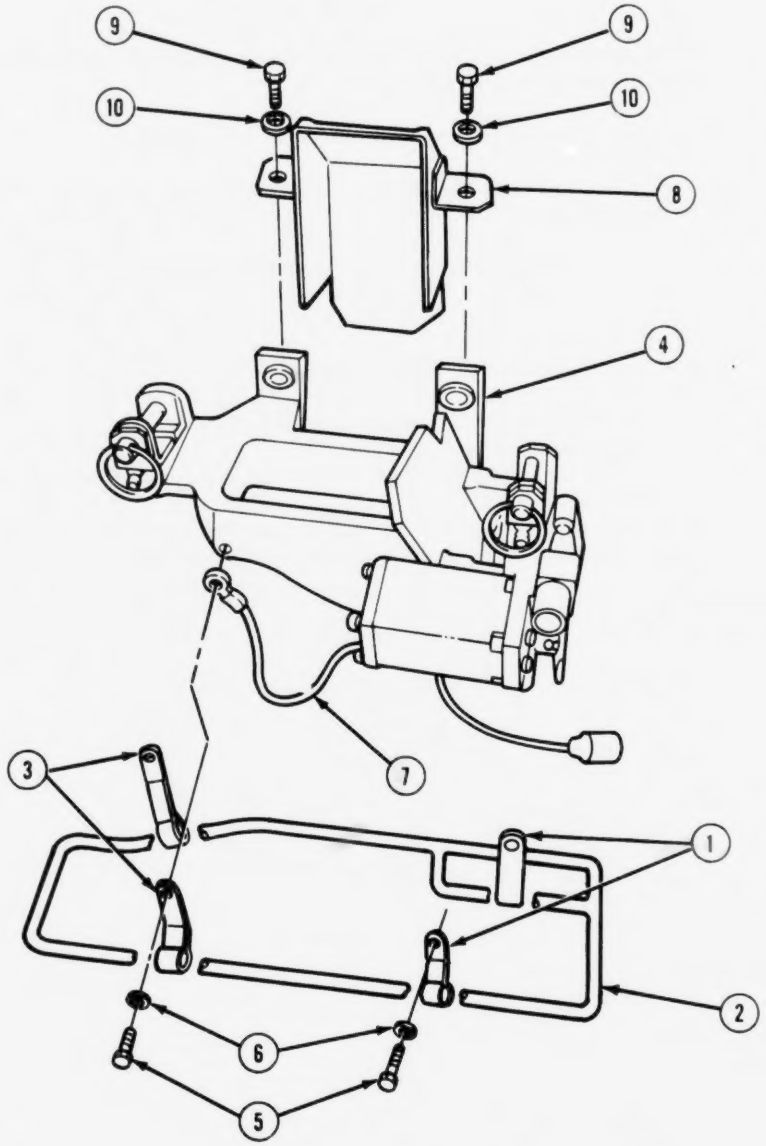
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Machine Gun Mount | FO-4 | 5 |

EQUIPMENT CONDITION: 7.62-mm mount travel lock removed (TM-10)

## 35-7. M240 MACHINE GUN MOUNT INSTALLATION PROCEDURE (CONT)

**FRAME 1**

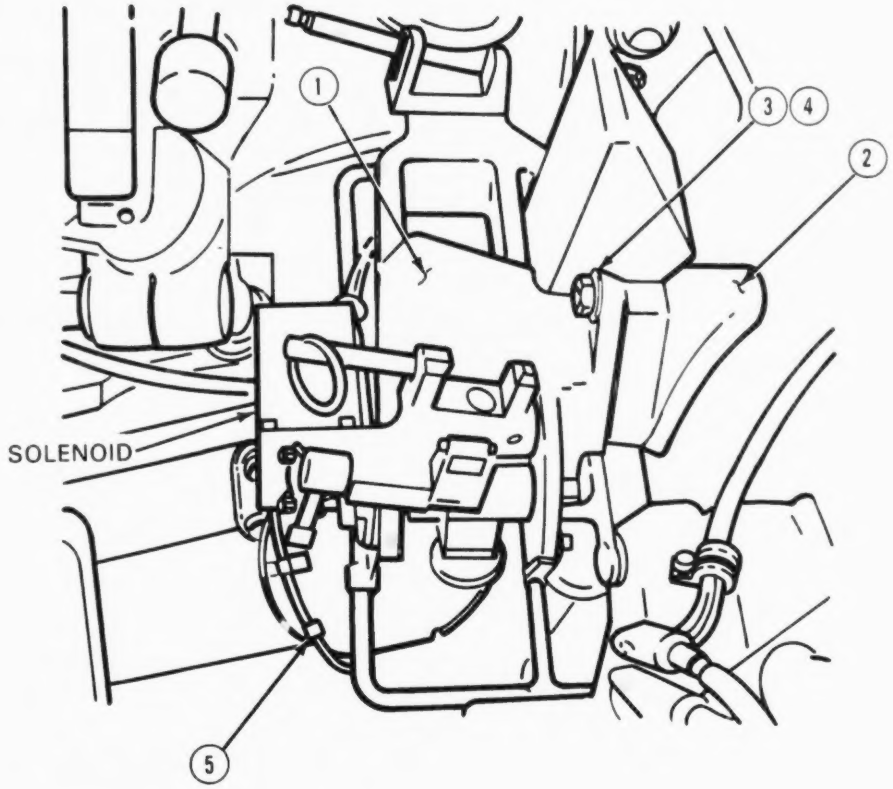
| STEP | PROCEDURE |
|---|---|
| 1. | Put two short brackets (1) on right end of cartridge bag support (2). |
| 2. | Put two long brackets (3) on left end of cartridge bag support (2). |
| 3. | Put cartridge bag support (2) and short brackets (1) and long brackets (3) in position on gun mount (4). |
| 4. | Using Allen wrench, attach two short brackets (1) to gun mount (4) with two screws (5) and two lockwashers (6). |
| 5. | Using Allen wrench, attach two long brackets (3) and solenoid ground lead (7) to gun mount (4) with two screws (5) and two lockwashers (6). |
| 6. | Using 3/8 inch drive torque wrench, torque four screws (5) to between 7 and 9 foot-pounds (JPG). |
| 7. | Using Allen wrench, attach deflector plate (8) to gun mount (4) with two drilled head screws (9). |
| 8. | Using pliers, lockwire two drilled head screws (9) (JPG) |
|  | **GO TO FRAME 2** |



## 35-7. M240 MACHINE GUN MOUNT INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>**When doing step 1, soldier A holds machine gun mount in place while soldier B puts in screws.** |
| 1. | Put machine gun mount (1) on combination gun mount (2) for main gun. |
| 2. | Using socket wrench, attach machine gun mount (1) to combination gun mount (2) with four new screws (3) and four flat washers (4). |
| 3. | Connect solenoid electrical connector (5) to vehicle electrical connector (JPG). |
| | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install 7.62-mm spent cartridge case bag (TM-10).**<br>**Install 7.62-mm machine gun (TM-10).**<br>**Check 7.62-mm machine gun trigger clearance and adjust as required (para 35-10).**<br>**Boresight and zero 7.62-mm machine gun (TM-10).**<br>**Check operation of 7.62-mm machine gun firing circuit (TM-10).** |
| | **END OF TASK** |


SOLENOID

## 35-8. M240 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE

TOOLS:
- 1-1/16 in. combination wrench
- 1-1/4 pound ball peen hammer
- 1/8 in. drive pin punch
- 1/16 in. drive pin punch
- Diagonal cutting pliers
- 7/16 in. combination wrench
- 1/8 in. flat tip screwdriver
- Stiff bristled brush
- Scraper
- 3/16 in. socket head screw key (Allen wrench)

SUPPLIES: Dry cleaning solvent (item 22, App. A)

PERSONNEL: Two

REFERENCES: JPG for procedures to:
  Clean parts
  Remove lockwire
TM 9-2350-222-10 for procedure to remove 7.62-mm mount travel lock

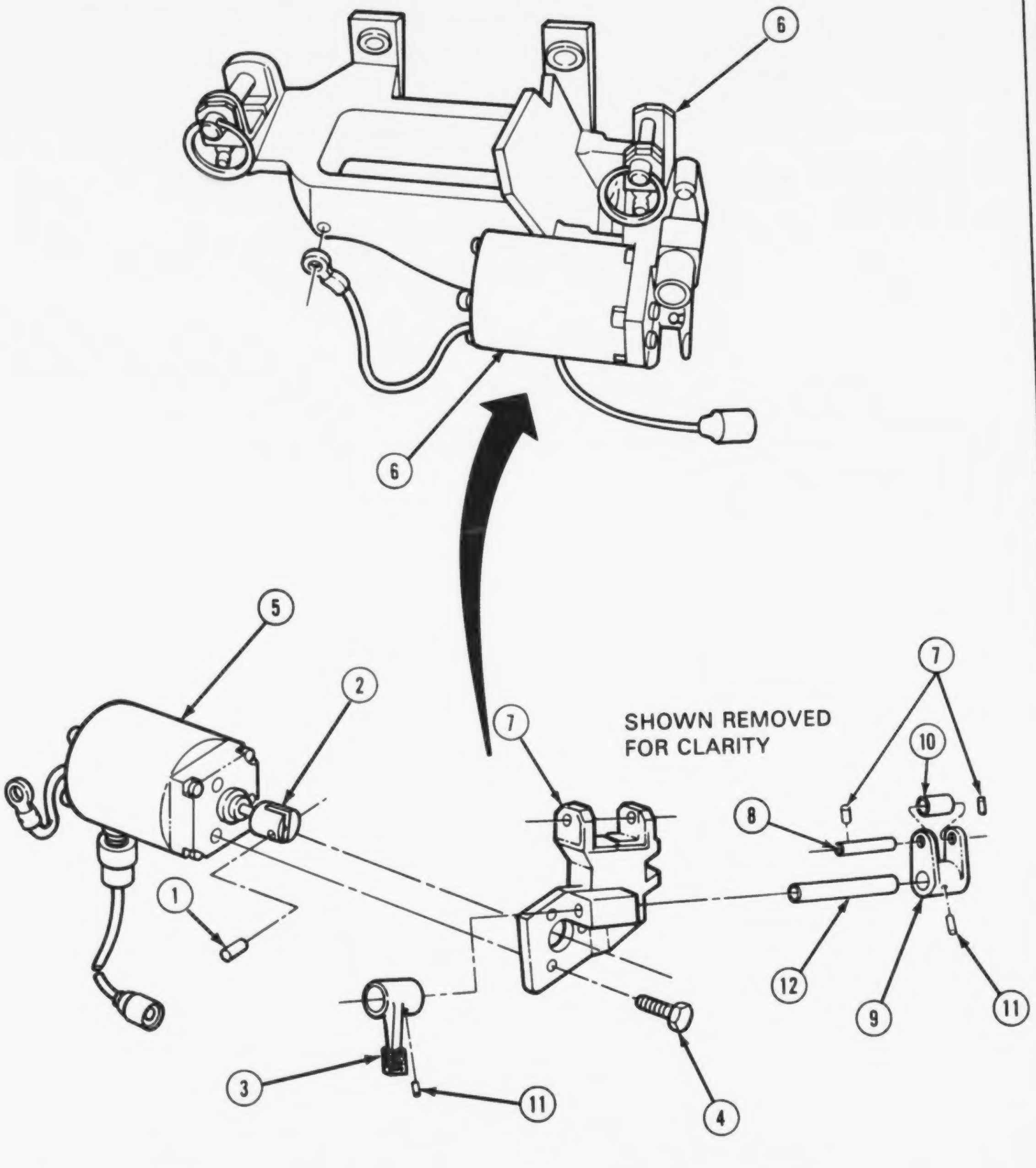
EQUIPMENT CONDITION: 7.62-mm mount travel lock removed (TM-10)

PRELIMINARY PROCEDURE: Remove M240 machine gun mount (para 35-6)

## 35-8. M240 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using hammer and 1/8 inch punch, carefully remove spring roll pin (1) that attaches solenoid clevis (2) to manual trigger (3). |
| 2. | Using cutting pliers, remove lockwire from three screws (4) (JPG). |
| 3. | Using 7/16 inch wrench, remove three screws (4). |
|  | **NOTE**<br>**Do not turn solenoid clevis (2) as additional adjustment will be required during assembly.** |
| 4. | Remove solenoid (5) from aligning pin and gun mount (6). |
|  | **NOTE**<br>**If solenoid (5) or solenoid clevis (2) is to be replaced, do step 5, otherwise go to step 6.** |
| 5. | Unscrew and remove solenoid clevis (2) from solenoid (5). |
| 6. | Using hammer and 1/16 inch punch, remove spring roll pins (7) that secure trigger roller pin (8) to trigger actuator lever (9). |
| 7. | Remove trigger roller pin and trigger roller (10). |
| 8. | Using hammer and 1/8 inch punch, remove spring roll pin (11) that attaches manual trigger (3) to trigger linkage shaft (12). |
| 9. | Using hammer and 1/8 inch punch, remove second spring roll pin (11) that attaches trigger linkage shaft (12) to trigger actuator lever (9). |
| 10. | Remove manual trigger (3), trigger linkage shaft (12), and trigger actuator lever (9).<br>**GO TO FRAME 2** |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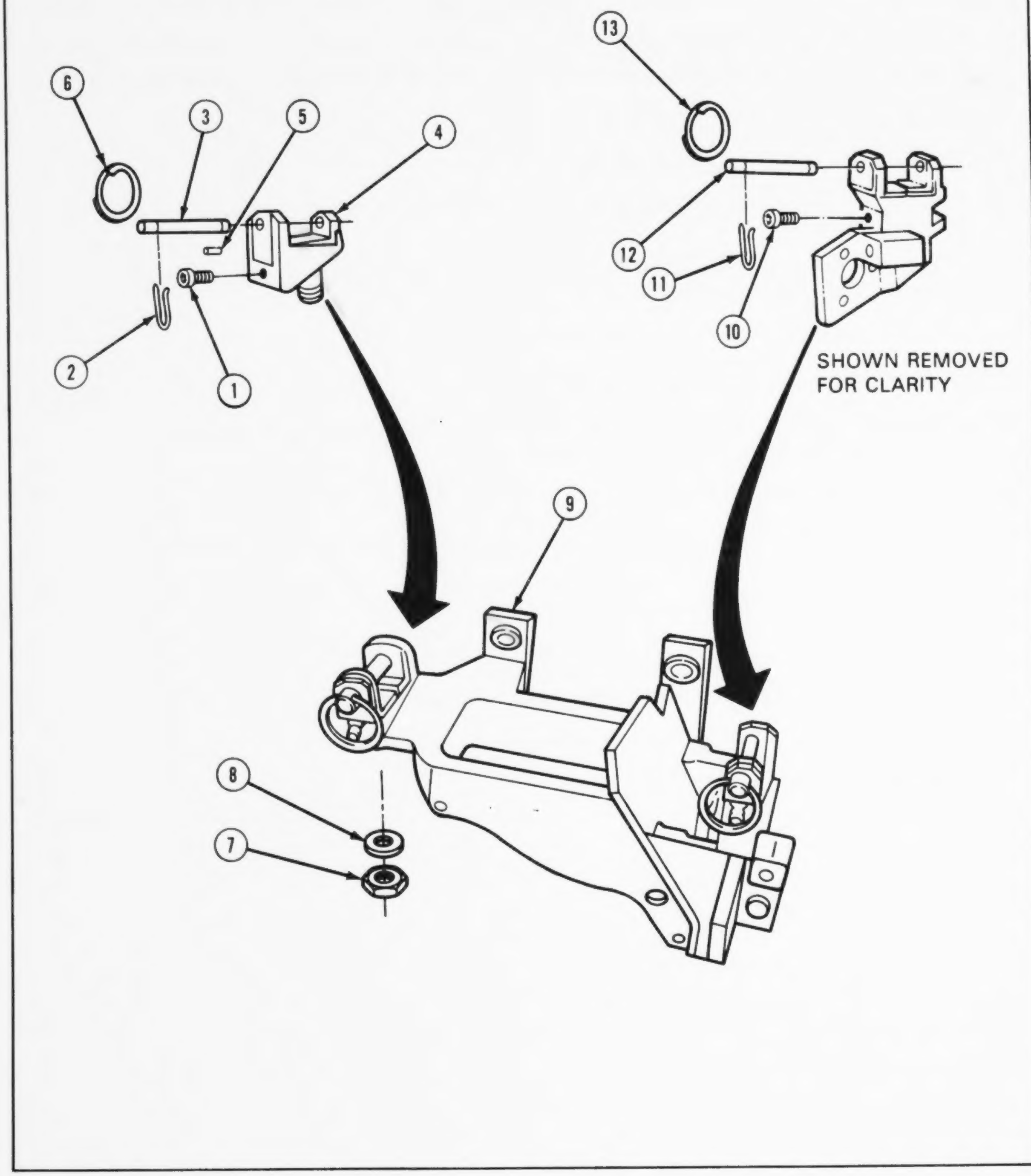
## 35-8. M240 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Using Allen wrench, remove screw (1). |
| 2. | Using screwdriver, remove retaining clip (2) and pull out front pin (3) from mounting block (4). |
| 3. | Using 1/8 inch punch and hammer, remove two spring pins (5). |
| 4. | Using screwdriver, open end of ring (6) and remove ring from front pin (3). |
| 5. | Using combination wrench, remove nut (7) and flat washer (8) that attach front mounting block (4) to gun mount base (10). |
| 6. | Using Allen wrench, remove screw (10). |
| 7. | Using screwdriver, remove retaining clip (11) and pull out rear pin (12). |
| 8. | Using screwdriver, open end of ring (13) and remove ring from rear pin (12). |
|  | **GO TO FRAME 3** |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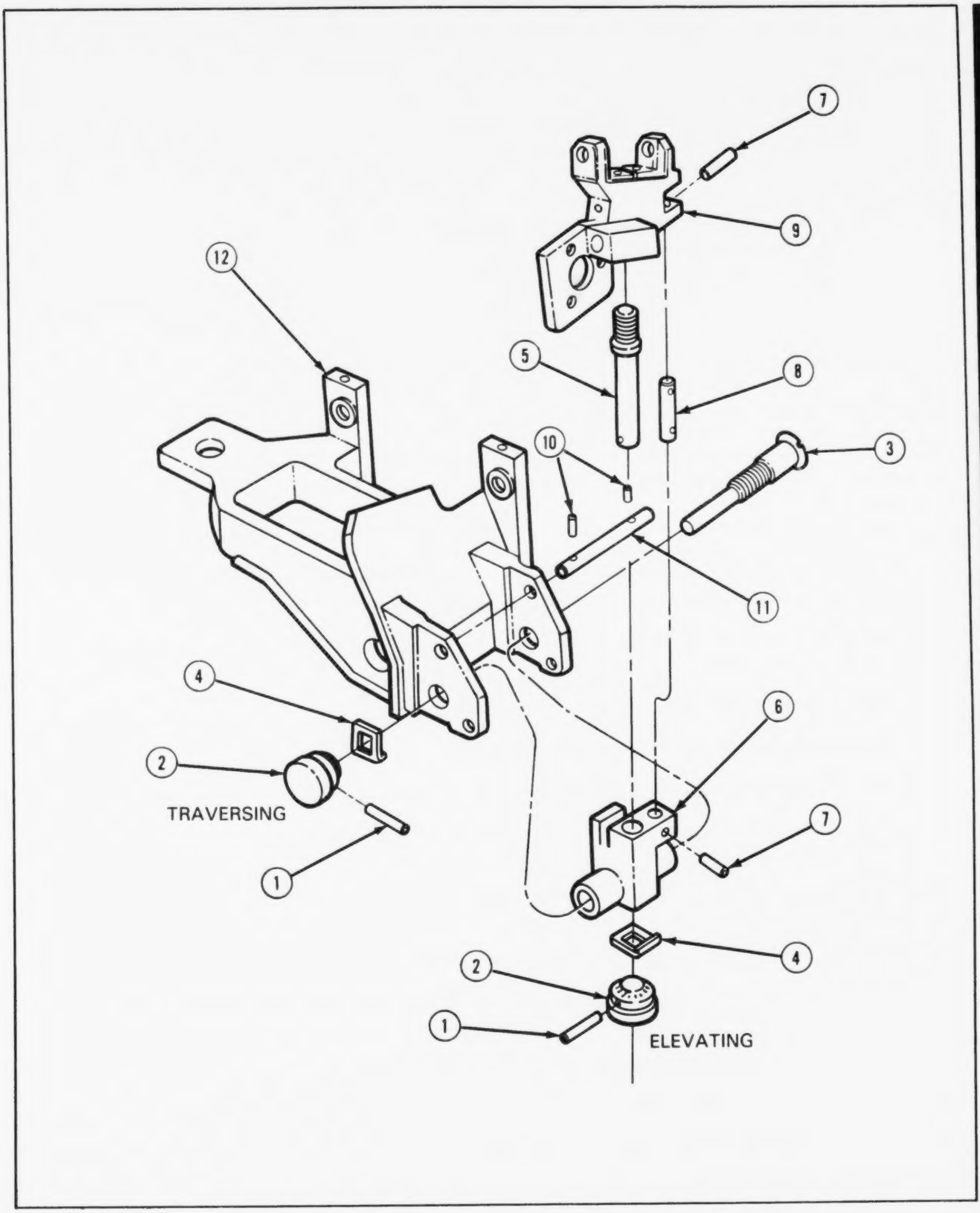
## 35-8. M240 MACHINE GUN MOUNT DISASSEMBLY PROCEDURE (CONT)

**FRAME 3**

| STEP | PROCEDURE |
|---|---|
| 1. | Using hammer and 1/8 inch punch, remove spring pin (1) that attaches knob (2) to traversing shaft (3). |
| 2. | Remove knob (2) and ratchet bracket (4). |
| 3. | Repeat steps 1 and 2 for elevating shaft (5). |
| 4. | Using 1-1/16 inch wrench unscrew and remove traversing shaft (3) that attaches traversing and elevating bracket (6). |
| 5. | Using hammer and 1/16 inch punch, remove spring pin (7) that attaches connecting pin (8) to traversing and elevating bracket (6). |
| 6. | Lift, and then remove, rear mounting bracket (9). |
| 7. | Remove traversing and elevating bracket (6). |
| 8. | Using hammer and 1/16 inch punch, remove spring pin (7) that attaches connecting pin (8) to rear mounting bracket (9). Remove connecting pin (8). |
| 9. | Unscrew and remove elevating shaft (5) from rear mounting bracket (9). |
| 10. | Using hammer and 1/16 inch punch, remove two spring pins (10) that attach traverse and elevating bracket shaft (11) to gun mount base (12). |
| 11 | Remove traverse and elevating bracket shaft (11). |
|  | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Clean all parts of M240 machine gun mount (JGP).** |
|  | **END OF TASK** |


TRAVERSING
ELEVATING

## 35-9. M240 MACHINE GUN MOUNT ASSEMBLY PROCEDURE

TOOLS:
1-1/4 pound ball peen hammer
1/8 in. flat tip screwdriver
1-1/16 in. combination wrench
7/16 in. combination wrench
3/16 in. socket head screw key (Allen wrench)
Needle nose pliers
3/16 in. drift pin punch

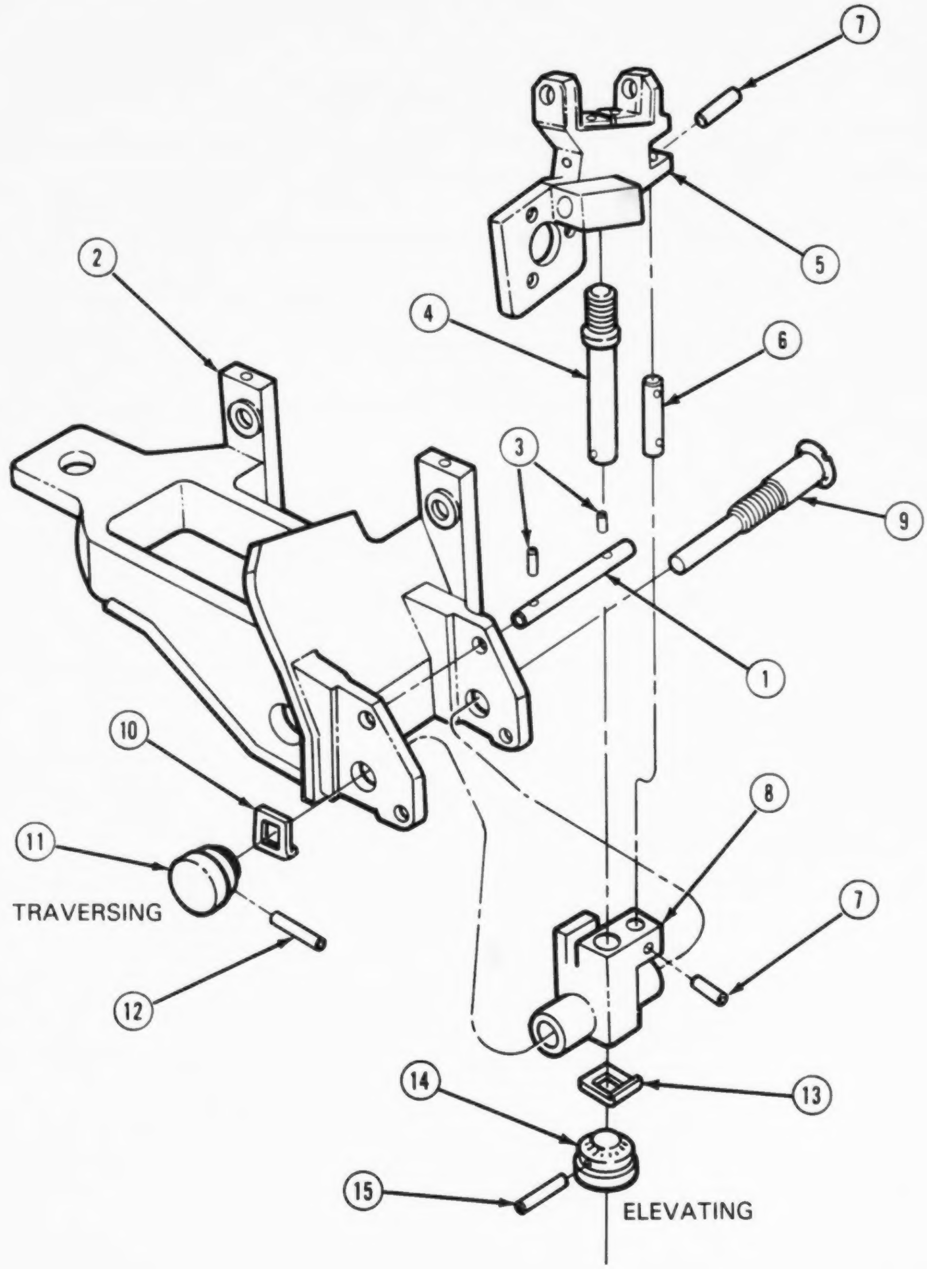
SUPPLIES:
Lockwire
Self locking nut (MS21083-N12) (1 Required)
Spring pins (MS16562-35) (2 Required)
Spring pins (MS16562-38) (2 Required)
Spring pins (MS16562-40) (2 Required)
Spring pins (MS16562-45) (2 Required)
Spring pins (MS16562-48) (2 Required)
Spring pins (MS16562-14) (2 Required)
Spring pins (MS39086-150) (1 Required)

PERSONNEL: One

REFERENCE: JPG for procedure to install lockwire

**FRAME 1**

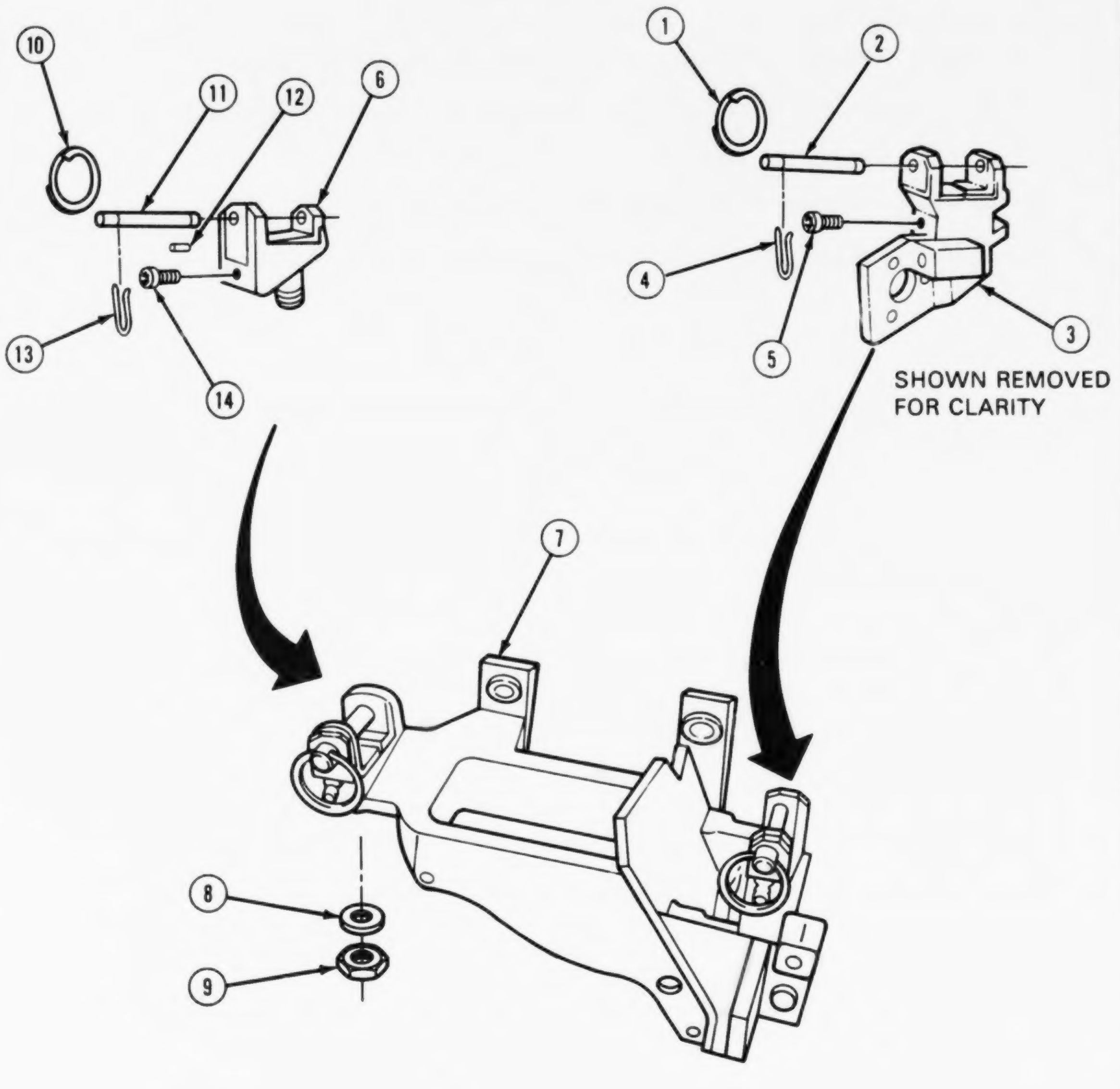
| STEP | PROCEDURE |
|---|---|
| 1. | Put traversing and elevating bracket shaft (1) in gun mount base (2). |
| 2. | Using hammer and punch, attach traversing and elevating bracket shaft (1) to gun mount base (2) with two spring pins (3). |
| 3. | Screw elevating shaft (4) in rear mounting bracket (5). |
| 4. | Put connecting pin (6) in rear mounting bracket (5). |
| 5. | Using hammer and punch, attach connecting pin (6) to rear mounting bracket (5) with spring pin (7). |
| 6. | Slide rear mounting bracket (5) with elevating shaft (4) and connecting pin (6) on traversing and elevating bracket (8). |
| 7. | Using hammer and punch, attach connecting pin (6) to traversing and elevating bracket (8) with spring pin (7). |
| 8. | Position traversing and elevating bracket (8) on gun mount base (2). |
| 9. | Using 1-1/16 inch wrench screw traversing shaft (9) into gun mount base (2) and traversing and elevating bracket (8). |
| 10. | Put ratchet bracket (10) and knob (11) on traversing shaft (9). |
| 11. | Using hammer and punch, attach knob (11) to traversing shaft (9) with spring pin (12). |
| 12. | Put ratchet bracket (13) and knob (14) on elevating shaft (4). |
| 13. | Using hammer and punch, attach knob (14) to elevating shaft (4) with spring pin (15). |
|  | **GO TO FRAME 2** |


TRAVERSING
ELEVATING

## 35-9. M240 MACHINE GUN MOUNT ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Using screwdriver, open end of ring (1) and put on small pin (2). |
| 2. | Push rear pin (2) in rear mounting block (3) and secure with retaining clip (4). |
| 3. | Using Allen wrench, attach retaining clip (4) to rear mounting block (3) with screw (5). |
| 4. | Put front mounting block (6) on gun mount base (7). |
| 5. | Using 1-1/16 inch combination wrench, attach front mounting block (6) to gun mount base (7) with flat washer (8) and nut (9). |
| 6. | Using screwdriver, open end of ring (10) and put on front pin (11). |
| 7. | Using hammer and punch, put two spring pins (12) in front mounting block (6). |
| 8. | Push front pin (11) in front mounting block (6) and secure with retaining clip (13). |
| 9. | Using Allen wrench, attach retaining clip (13) to front mounting block (6) with screw (14). |
|  | **GO TO FRAME 3** |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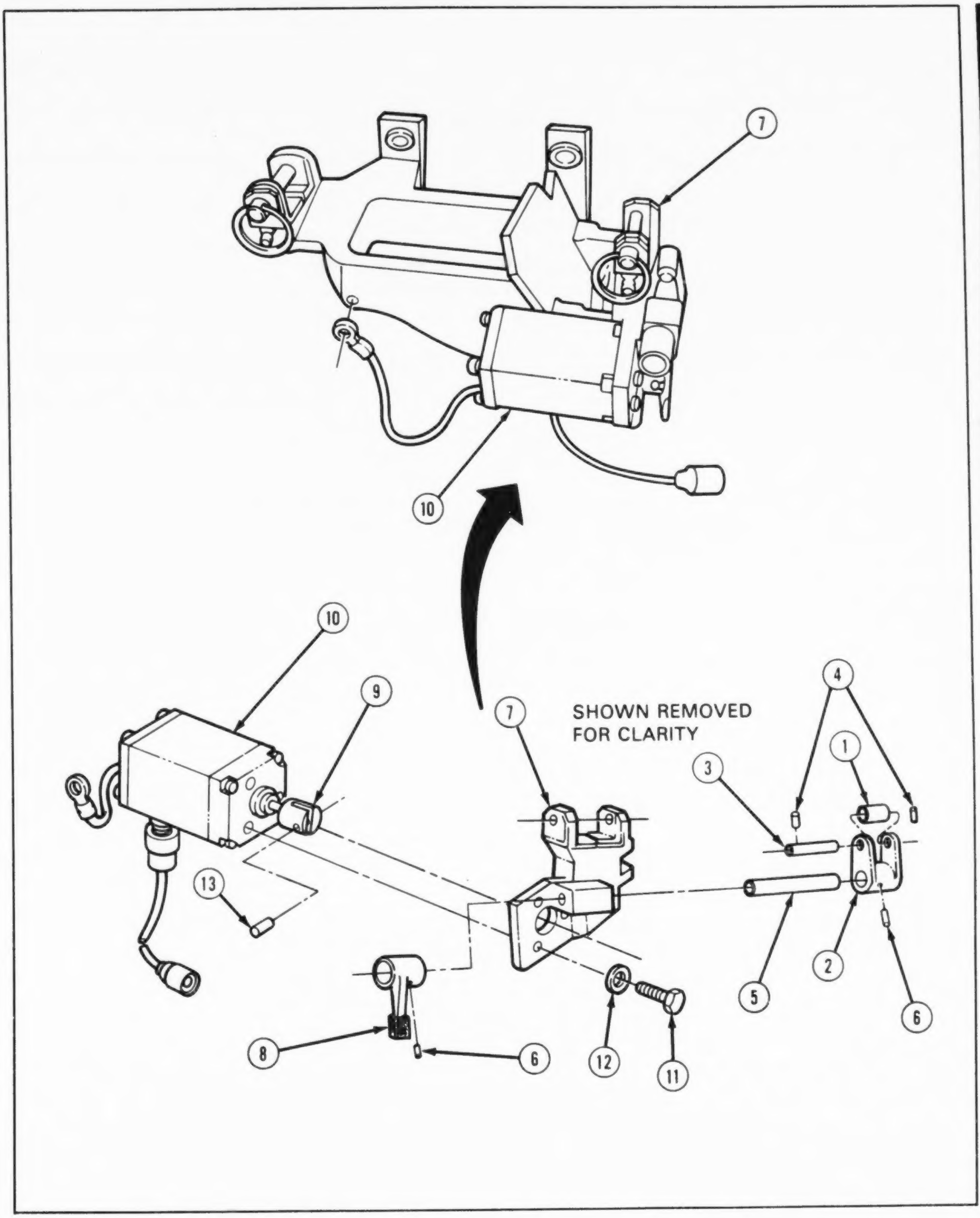
## 35-9. M240 MACHINE GUN MOUNT ASSEMBLY PROCEDURE (CONT)

**FRAME 3**

| STEP | PROCEDURE |
|---|---|
| 1. | Put roller (1) in trigger actuator lever (2), line up holes and slide in roller pin (3). |
| 2. | Using hammer and punch, attach roller pin (3) to trigger actuator lever (2) with two spring roll pins (4). |
| 3. | Using hammer and punch, attach linkage shaft (5) to trigger actuator lever (2) with spring roll pin (6). |
| 4. | Put trigger linkage shaft (5) with attachments in gun mount (7) and slide on manual trigger (8). |
| | **NOTE**<br>**Spring roll pin (6) is only partially installed to aid in machine gun mount adjustment (para 35-10).** |
| 5. | Using hammer, put spring roll pin (6) about half-way through manual trigger (8) and trigger linkage shaft (5). |
| | **NOTE**<br>**If solenoid clevis (9) was removed, do step 6, otherwise go to step 7.** |
| 6. | Screw solenoid clevis (9) in solenoid (10). |
| 7. | Put solenoid (10) on gun mount (7). |
| 8. | Using 7/16 inch wrench, attach solenoid (10) to gun mount (7) with three screws (11). |
| 9. | Using needle nose pliers, lockwire three screws (11) (JPG). |
| | **NOTE**<br>**Spring roll pin (12) is only partially installed to aid in machine gun mount adjustment (para 35-10).** |
| 10. | Using hammer, put spring roll pin (12) about half-way through solenoid clevis (9) and manual trigger (8).<br>**GO TO FRAME 4** |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## 35-9. M240 MACHINE GUN MOUNT ASSEMBLY PROCEDURE (CONT)

FRAME 4

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install M240 machine gun mount (para 35-7).<br>Adjust M240 machine gun mount (para 35-10).<br>END OF TASK |

## 35-10. M240 MACHINE GUN MOUNT ADJUSTMENT PROCEDURE

TOOLS: 1-1/4 pound ball peen hammer
Feeler gauge
Slip joint pliers

PERSONNEL: One

REFERENCE: JPG for procedure to use feeler gauge

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Machine Gun Mount | FO-4 | 5 |

PRELIMINARY PROCEDURE: Install M240 machine gun mount (para 35-7)

GENERAL INSTRUCTIONS:

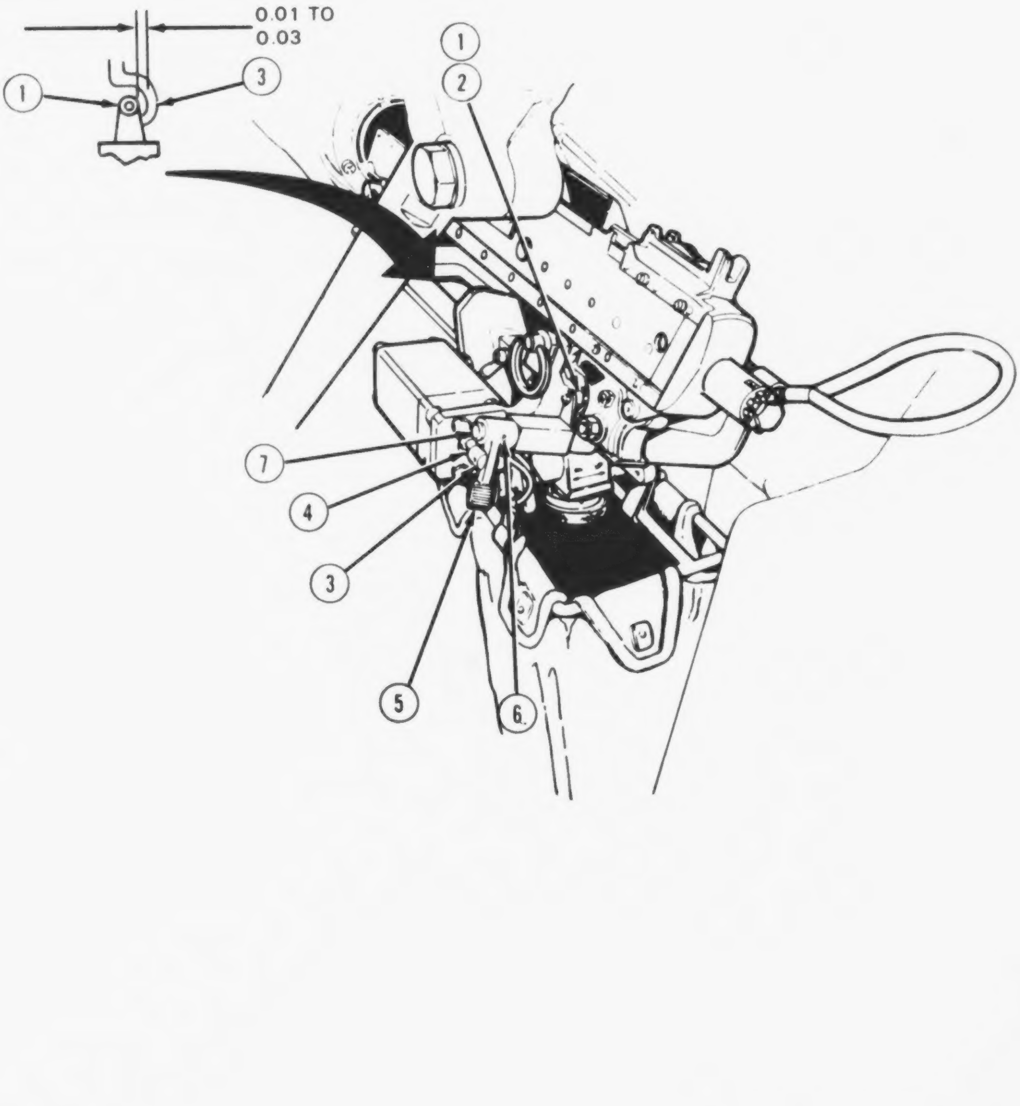
**NOTE**

**If machine gun mount, solenoid or manual trigger link part was replaced, clearance check must be performed.**

## 35-10. M240 MACHINE GUN MOUNT ADJUSTMENT PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>**Clearance between link roller (1) and machine gun trigger (2) must be between 0.01 and 0.03 inches.** |
| 1. | Using feeler gauge, check clearance between link roller (1) and machine gun trigger (2) (JPG). |
| | **NOTE**<br>**If proper clearance was obtained, go to step 9. If clearance has to be adjusted, do steps 2 through 8.** |
| 2. | Using pliers, remove spring roll pin (3) until manual trigger (5) is not attached to solenoid clevis (4). |
| 3. | Using pliers, loosen spring roll pin (6) until manual trigger (5) is not attached to trigger linkage shaft (7). |
| 4. | Rotate manual trigger (5) upward to obtain clearance to turn solenoid clevis (4). |
| | **NOTE**<br>**Each 1/2 turn of solenoid clevis (4) gives about 0.018 inch travel.** |
| 5. | Turn solenoid clevis (4) to lengthen for more clearance or shorten for too much clearance. |
| 6. | Using hammer, position manual trigger (5) and put spring roll pin (6) about half-way through manual trigger (5) and trigger linkage shaft (7). |
| 7. | Using hammer, position manual trigger (5) and put spring roll pin (3) about half-way through solenoid clevis (4) and manual trigger (5). |
| 8. | Repeat step 1. |
| 9. | Using hammer, complete insertion of spring roll pin (3) and spring roll pin (6). |
| | **END OF TASK** |


0.01 TO
0.03
1
3
1
2
7
4
3
5
6

## 35-11. M240 MACHINE GUN DEFLECTOR PLATE REMOVAL PROCEDURE

TOOLS: 9/16 in. socket (3/8 in. drive)
3/8 in. drive ratchet
5 in. extension (3/8 in. drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Remove 7.62-mm spent cartridge case bag
Remove 7.62-mm machine gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Machine Gun Mount | FO-4 | 5 |

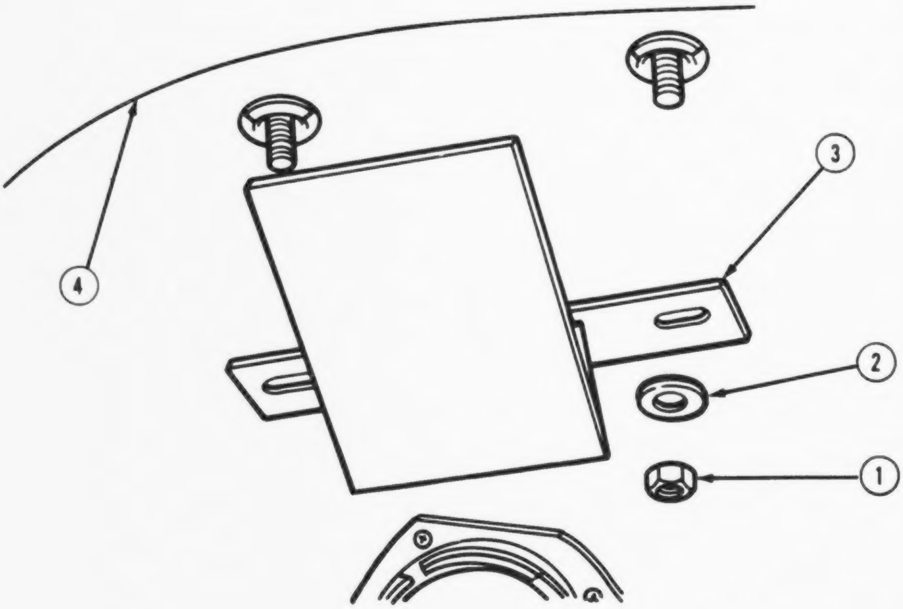
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
7.62-mm machine gun removed (TM-10)
7.62-mm spent cartridge case bag removed (TM-10)

PRELIMINARY PROCEDURE: Remove M240 machine gun mount (para 35-6)

## 35-11. M240 MACHINE GUN DEFLECTOR PLATE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using socket wrench, remove two nuts (1) and two flat washers (2) that attach deflector plate (3) to nylon ballistic shield (4). |
| 2. | Remove deflector plate (3).<br>**END OF TASK** |



## 35-12. M240 MACHINE GUN DEFLECTOR PLATE INSTALLATION PROCEDURE

TOOLS: 9/16 in. socket (3/8 in. drive)
3/8 in. drive ratchet
5 in. extension (3/8 in. drive)

SUPPLIES: Self locking nut (MS51222-17) (2 Required)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Install 7.62-mm spent cartridge case bag
Install 7.62-mm machine gun

EQUIPMENT LOCATION INFORMATION:

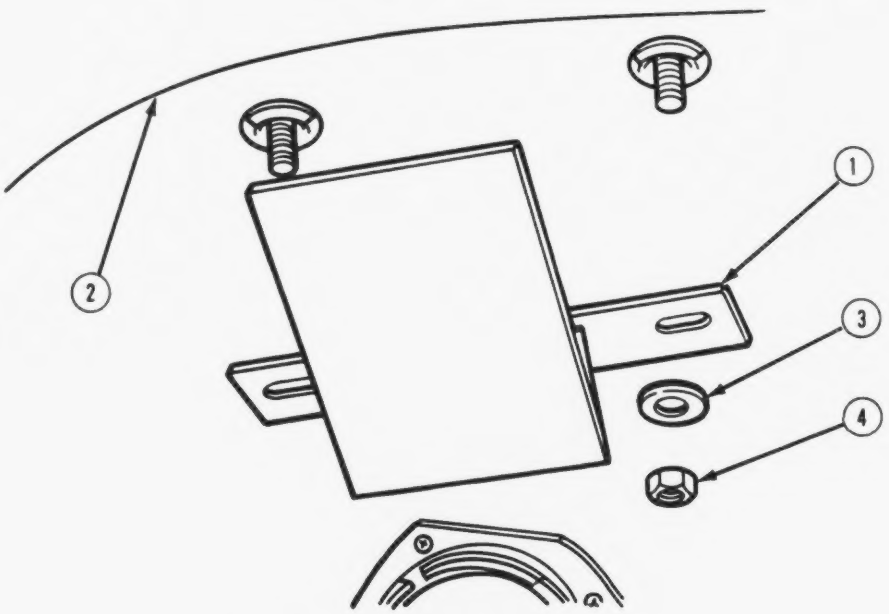
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Machine Gun Mount | FO-4 | 5 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 35-12. M240 MACHINE GUN DEFLECTOR PLATE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Put deflector plate (1) on nylon ballistic shield (2) with long flat part of deflector plate (1) facing up. |
| 2. | Using socket wrench, attach deflector plate (1) to nylon ballistic shield (2) with two flat washers (3) and two new nuts (4). |
|  | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install M240 machine gun bracket (para 35-7).**<br>**Install 7.62-mm machine gun (TM-10).**<br>**Install 7.62-mm spent cartridge case bag (TM-10).** |
|  | **END OF TASK** |



# CHAPTER 36

# COMMANDER'S CUPOLA

## Section 1. SCOPE

### 36-1. LIST OF EQUIPMENT ITEMS CONTAINED IN THIS CHAPTER

| Section | Equipment Item | Paragraph |
|---|---|---|
| 2 | Cupola Cover | 36-3 |
| 3 | Ballistics Cover | 36-5 |
| 4 | Cradle | 36-8 |
| 5 | Interconnecting Box | 36-14 |
| 6 | Resistor | 36-17 |
| 7 | Cupola Power Switch | 36-20 |
| 8 | Cupola Power Relay | 36-23 |
| 9 | Safety Switch and Guard | 36-26 |
| 10 | Pads | 36-29 |
| 11 | Cupola Hatch | 36-34 |
| 12 | Top Access Door | 36-52 |
| 13 | Direct Vision Window | 36-57 |
| 14 | Cupola Azimuth Gear Box | 36-60 |
| 15 | Cupola Azimuth Lock | 36-65 |
| 16 | Elevation Screw Jack | 36-70 |
| 17 | Cupola Machine Gun Ammunition Feed System | 36-75 |
| 18 | Commander's Control Panel | 36-86 |
| 19 | Last Round Stop Switch | 36-89 |

## Section 2. CUPOLA COVER

### 36-2. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Cupola Cover | 36-3 | 36-4 |

## 36-3. CUPOLA COVER REMOVAL PROCEDURE

TOOLS:
9/16 in. socket (3/8 in. drive)
3/8 in. drive ratchet
Flat-tip screwdriver

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Elevate and depress caliber .50 machine gun
Open and close M36/M36E1 periscope ballistic shield

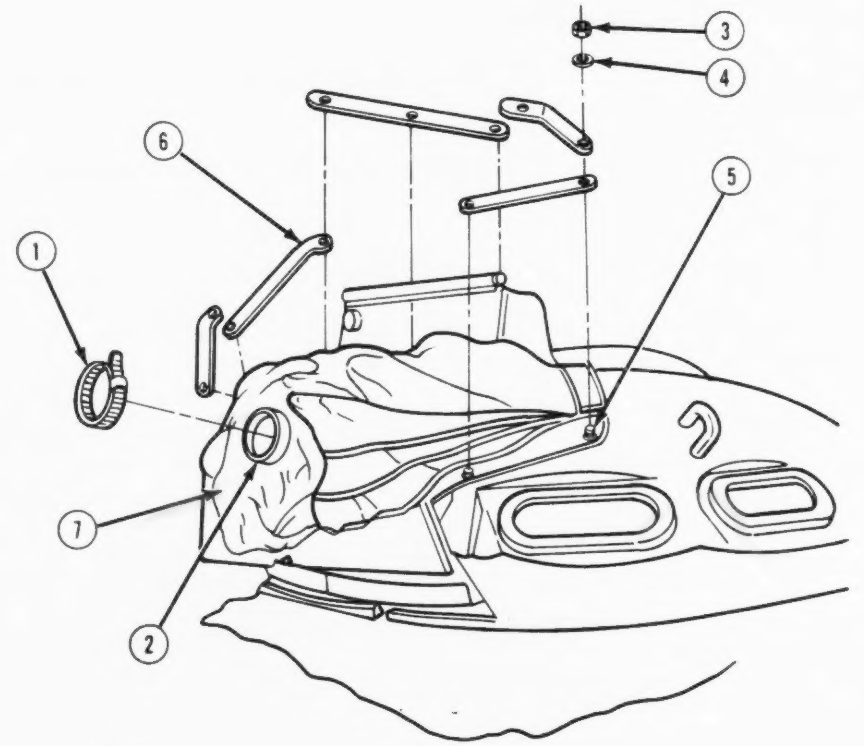
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Open M36/M36E1 periscope ballistic shield (TM-10). |
| 2. | Using screwdriver, remove clamp (1) from gun mount (2). |
| 3. | Fully elevate gun (TM-10). |
| 4. | Using socket wrench, remove eight locknuts (3) and eight flat washers (4) from studs (5). |
| 5. | Depress gun to horizontal position (TM-10). |
| 6. | Remove five straps (6) from cover (7). |
| 7. | Remove cover (7) from studs (5). |
| 8. | Close M36/M36E1 periscope ballistic shield (TM-10). |
| | **END OF TASK** |



## 36-4. CUPOLA COVER INSTALLATION PROCEDURE

TOOLS: 9/16 in. socket (3/8 in. drive)
3/8 in. drive ratchet
Flat-tip screwdriver

SUPPLIES: Self-locking nuts (MS21083-N6) (8 req'd)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedures to:
Elevate and depress caliber .50 machine gun
Open and close M36/M36E1 periscope ballistic shield

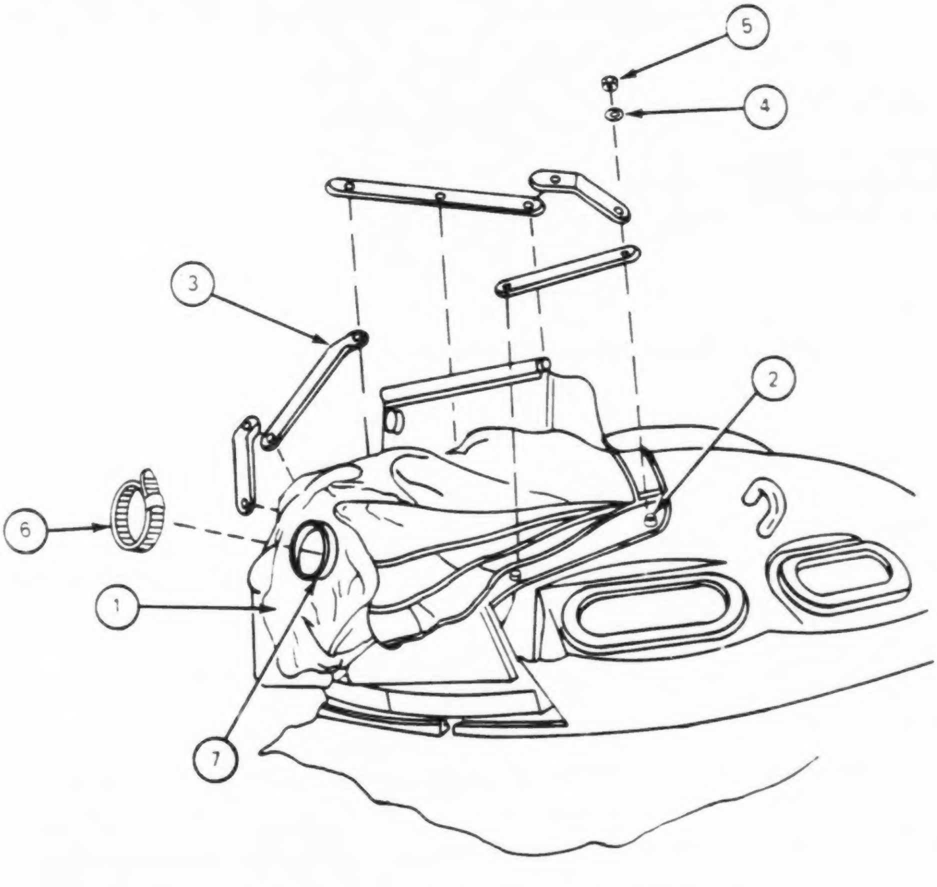
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Open M36/M36E1 periscope ballistic shield (TM-10). |
| 2. | Put cover (1) over eight studs (2). |
| 3. | Put five straps (3) in correct position over studs (2). |
| 4. | Elevate gun to maximum (TM-10). |
| 5. | Using socket wrench, put on eight flat washers (4) and eight new locknuts (5). Tighten eight locknuts. |
| 6. | Using screwdriver, put clamp (6) around gun mount (7). Tighten clamp. |
| 7. | Close M36/M36E1 periscope ballistic shield (TM-10). |
| | **END OF TASK** |



## Section 3. BALLISTICS COVER

### 36-5. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Ballistics Cover | 40-6 | 40-7 |

### 36-6. BALLISTICS COVER REMOVAL PROCEDURE

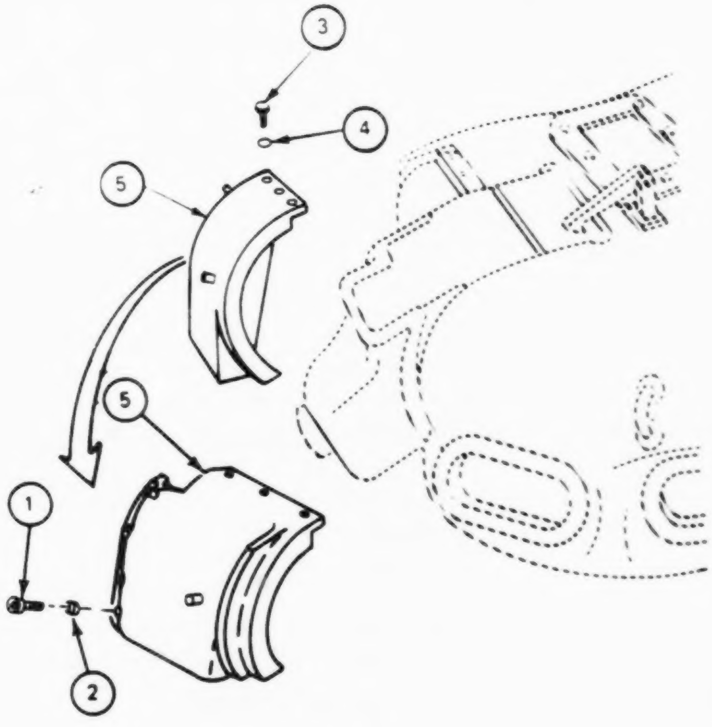
TOOLS: 3/4" socket (1/2" drive)
1/2" drive hinge handle
1/2" socket head screw key (Allen wrench)

PERSONNEL: Two

PRELIMINARY PROCEDURES: Remove cupola cover (para 36-3).

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Using Allen wrench, remove three hex head screws (1) and three lockwashers (2).<br>**WARNING**<br>Be careful when removing last screw as cover is heavy and if it falls it can hurt you. |
| 2. | Soldier A: Using socket wrench, remove three screws (3) and three lockwashers (4). |
| 3. | Soldiers A and B: Remove ballistics cover (5). |
|  | END OF TASK |



## 36-7. BALLISTICS COVER INSTALLATION PROCEDURE

TOOLS: 1/2" drive hinge handle
3/4" socket (1/2" drive)
Torque wrench (1/2" drive) (0 to 250 foot-pounds)
1/2" socket head screw key (Allen wrench)
1/2" hex head socket (1/2" drive)

PERSONNEL: Two

REFERENCES: JPG for procedures to:
Put on sealing compound
Use torque wrench

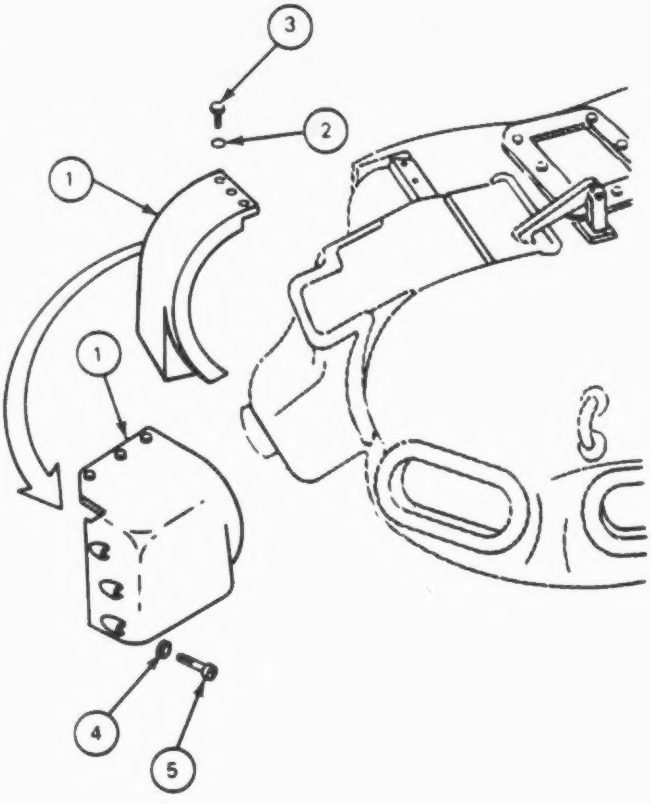
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Put sealing compound on all surfaces of ballistics cover (1) that mate with turret (JPG).<br>**WARNING**<br>Be careful when installing ballistics cover. Cover is heavy and if it falls it can hurt you. |
| 2. | Soldiers A and B: Put ballistics cover (1) in place on cupola. |
| 3. | Soldiers A and B: Using 3/4" socket wrench, put three lockwashers (2) and three screws (3) through top of ballistics cover (1). |
| 4. | Soldier A: Using torque wrench, torque three screws (3) to between 65 and 70 foot-pounds (JPG). |
| 5. | Soldier A: Using Allen wrench, put three lockwashers (4) and three screws (5) through left side of ballistics cover (1). |
| 6. | Soldier A: Using torque wrench with 1/2" hex head socket, torque three screws (5) to between 135 and 145 foot-pounds (JPG).<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install cupola cover (para 36-4).<br>END OF TASK |



## Section 4. CRADLE

### 36-8. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Adjustment | Removal | Tasks<br>Installation | Disassembly | Assembly |
|---|---|---|---|---|---|
| Cradle | 36-13 | 36-9 | 36-10 | 36-11 | 36-12 |

## 36-9. CRADLE REMOVAL PROCEDURE

TOOLS: 12″ adjustable wrench
Plastic face hammer
9/16″ socket (1/2″ drive)
1/2″ drive ratchet
5/16″ combination wrench
7/16″ combination wrench
3/4″ combination wrenches (two)
Diagonal cutting pliers
Long nose pliers
Breaker bar (1/2″ drive)
1-1/8″ socket (1/2″ drive)

SUPPLIES: 4″ x 4″ x 9-1/8″ block of wood

PERSONNEL: Two

REFERENCES: TM 9-2350-222-10 for procedures to:
Remove caliber .50 machine gun
Elevate and depress cradle (caliber .50 machine gun)
JPG for procedure to remove lockwire

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

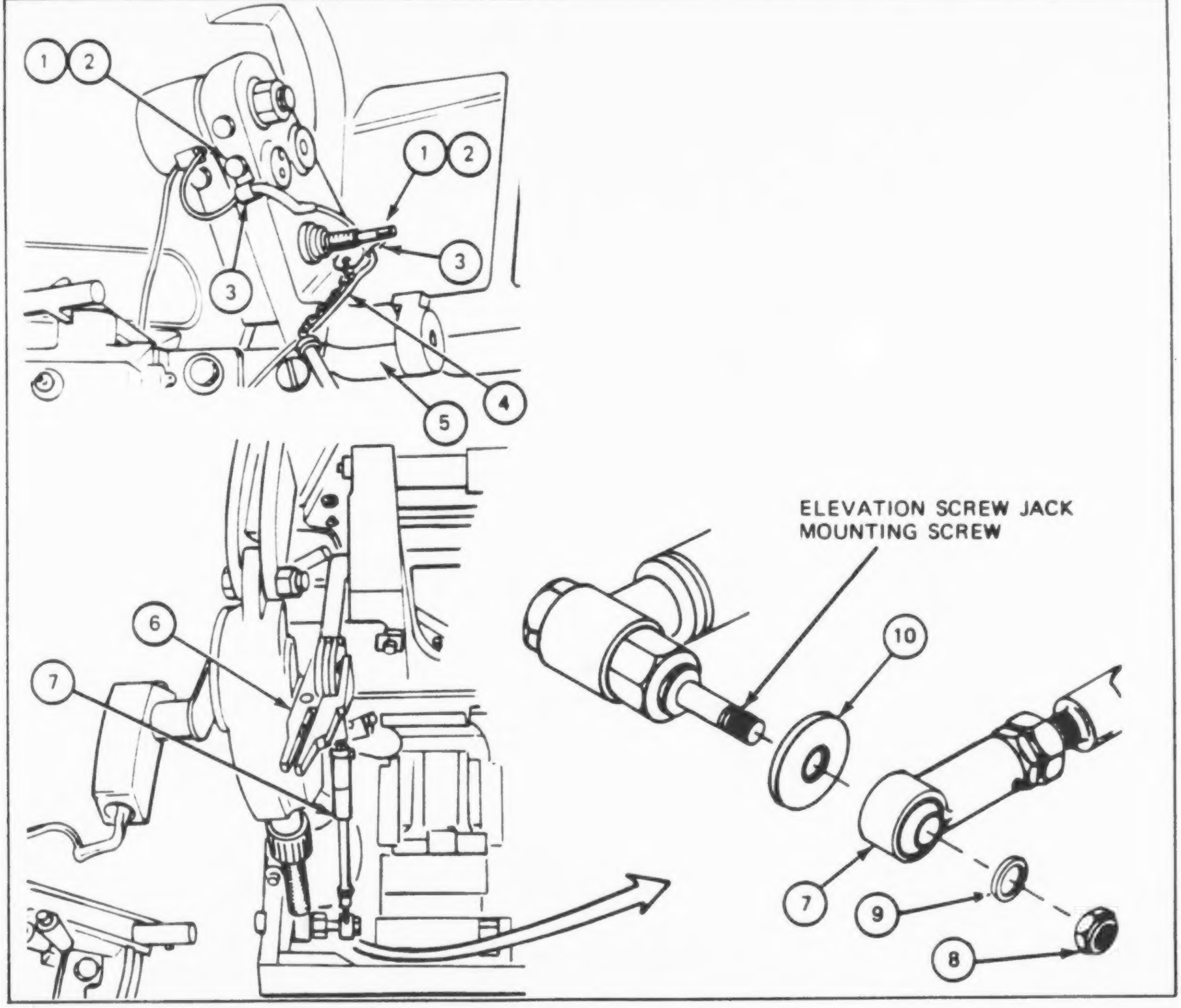
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Caliber .50 machine gun removed (TM-10)

PRELIMINARY PROCEDURES: Remove ballistic cover (para 36-6)
Remove ammunition fixed feed chute (para 36-84)

## 36-9. CRADLE REMOVAL PROCEDURE (CONT)

**FRAME 1**

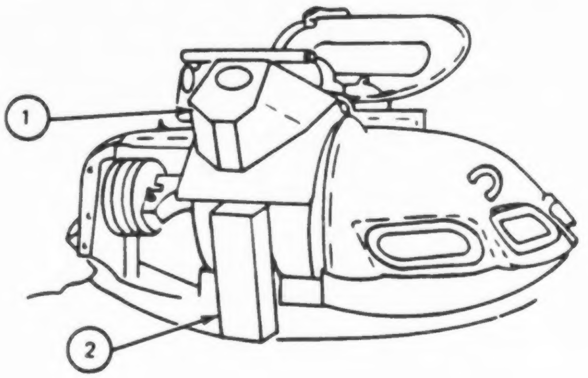
| Step | Procedure |
|---|---|
| 1. | Using 7/16" wrench, remove two screws (1), two lockwashers (2), and two clamps (3) that attach electrical harness (4) to cradle (5). |
| 2. | Squeeze quick-disconnect clamp (6) and remove periscope link (7) from periscope. |
| 3. | Using 7/16" wrench, remove self-locking nut (8) and small flat washer (9) from elevation screw jack mounting screw. |
| 4. | Remove periscope link (7) and large flat washer (10). |
| | GO TO FRAME 2 |


1
2
1
2
3
3
4
5
6
7
ELEVATION SCREW JACK MOUNTING SCREW
10
7
9
8

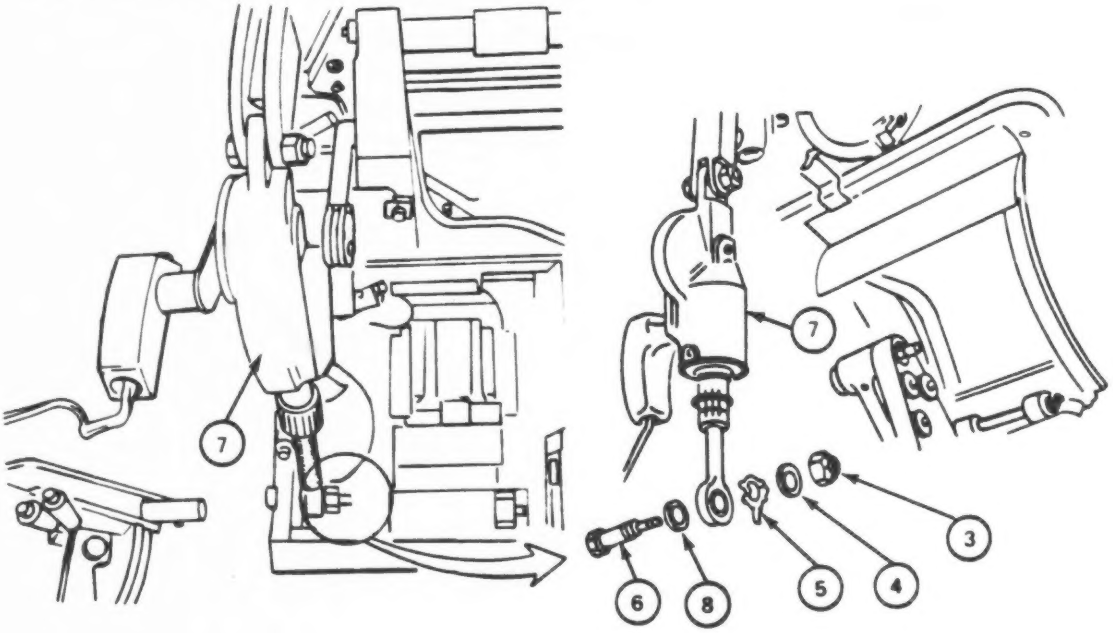
## 36-9. CRADLE REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Elevate cradle (caliber .50 machine gun) (1) to full elevation (TM-10). |
| 2. | Place wooden block (2) under cradle (1). Depress cradle (caliber .50 machine gun) (1) until it rests on block (2) (TM-10). |
| 3. | Using 3/4'' wrench, remove nut (3), flat washer (4), and spring (5). |
| 4. | Push out on screw (6) far enough to remove elevation screw jack (7) and flat washer (8). |
| 5. | Remove screw (6) from cradle (1). |
|  | GO TO FRAME 3 |



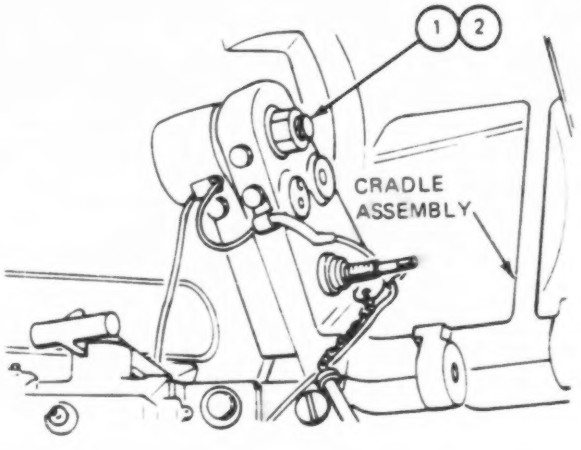
NOTE: PERISCOPE REMOVED FOR CLARITY.

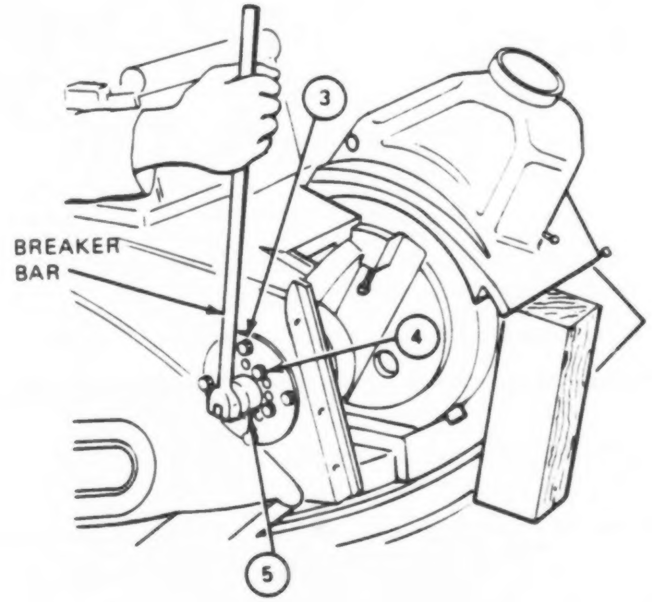


## 36-9. CRADLE REMOVAL PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Using 3/4" wrench and adjustable wrench, remove self-locking nut (1) and flat washer (2). |
| 2. | Soldier B: Using diagonal cutting pliers, remove lockwire from four outer screws (3) and four inner screws (4) (JPG). |
| | **CAUTION**<br>Shaft (5) is under spring tension. Be careful when releasing tension not to damage equipment. |
| 3. | Soldier A: Using breaker bar and 1-1/8" socket, hold tension on shaft (5) during step 4. |
| 4. | Soldier B: Using a 9/16" socket wrench, remove four inner screws (4). |
| 5. | Soldier A: Slowly release tension on shaft (5). |
| | GO TO FRAME 4 |


1
2
CRADLE ASSEMBLY

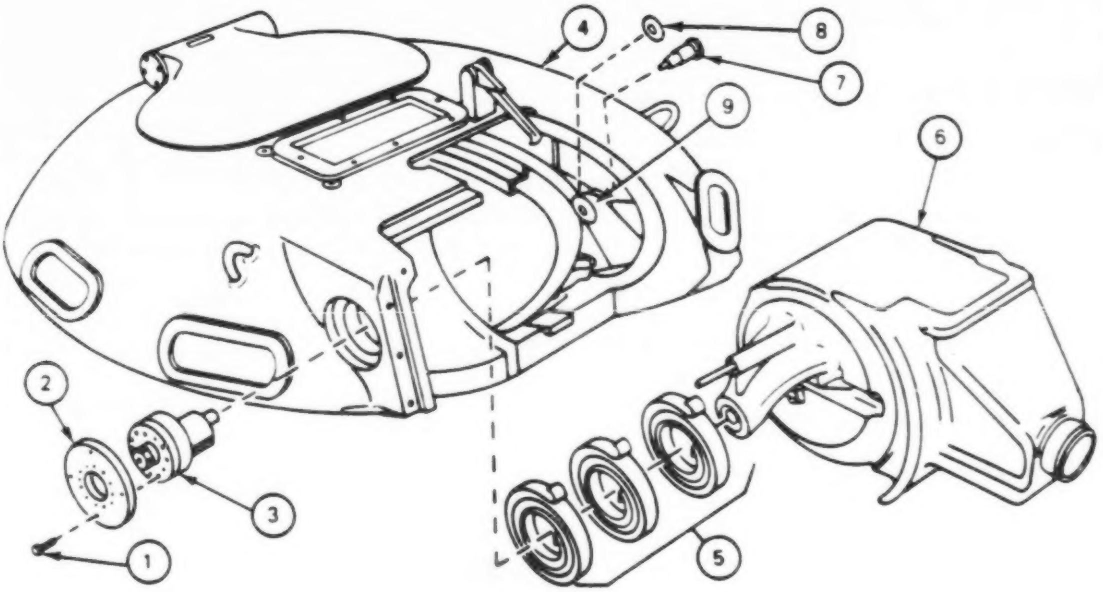

BREAKER BAR

## 36-9. CRADLE REMOVAL PROCEDURE (CONT)

**FRAME 4**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Soldier A: Do steps 1 through 7. |
| 1. | Using 9/16" socket wrench, remove four outer screws (1). |
| 2. | Remove retainer plate (2). |
| 3. | Put two screws into two holes on each side of shaft (3). |
| | **NOTE**<br>Shaft (3) may be too tight to remove with fingers. Breaker bar with socket may be wired using long nose pliers between screws with lockwire. Move breaker bar back and forth while pulling outward. |
| 4. | Pull shaft (3) out of cupola (4). |
| 5. | Remove two screws from shaft (3). |
| 6. | Remove three equilibrator springs (5). |
| | **WARNING**<br>Cradle weighs more than 100 pounds and can hurt you or damage equipment if it falls. |
| 7. | Support cradle (6) from outside of cupola (4) during step 8. |
| 8. | Soldier B: Using hammer inside cupola, drive screw (7) with spacer (8) from cradle (6) and left mount (9). |
| 9. | Soldiers A and B: Remove cradle (6) from cupola (4). |
| | END OF TASK |

**Para 36-9 Cont**



## 36-10. CRADLE INSTALLATION PROCEDURE

TOOLS: 9/16" socket (1/2" drive)
1/2" drive ratchet
7/16" combination wrench
3/4" combination wrenches (two)
Long nose pliers
1/2" drive torque wrench (0 to 250 foot-pounds)
3/4" socket (1/2" drive)
12" adjustable wrench
Plastic face hammer

SUPPLIES: 4" x 4" x 9-1/8" block of wood
Self-locking nut, MS 21044-N8 (two)

PERSONNEL: Two

REFERENCES: TM 9-2350-222-10 for procedures to:
    Install caliber .50 machine gun
    Elevate and depress cradle (caliber .50 machine gun)
JPG for procedures to:
    Install lockwire
    Use torque wrench

EQUIPMENT LOCATION INFORMATION:

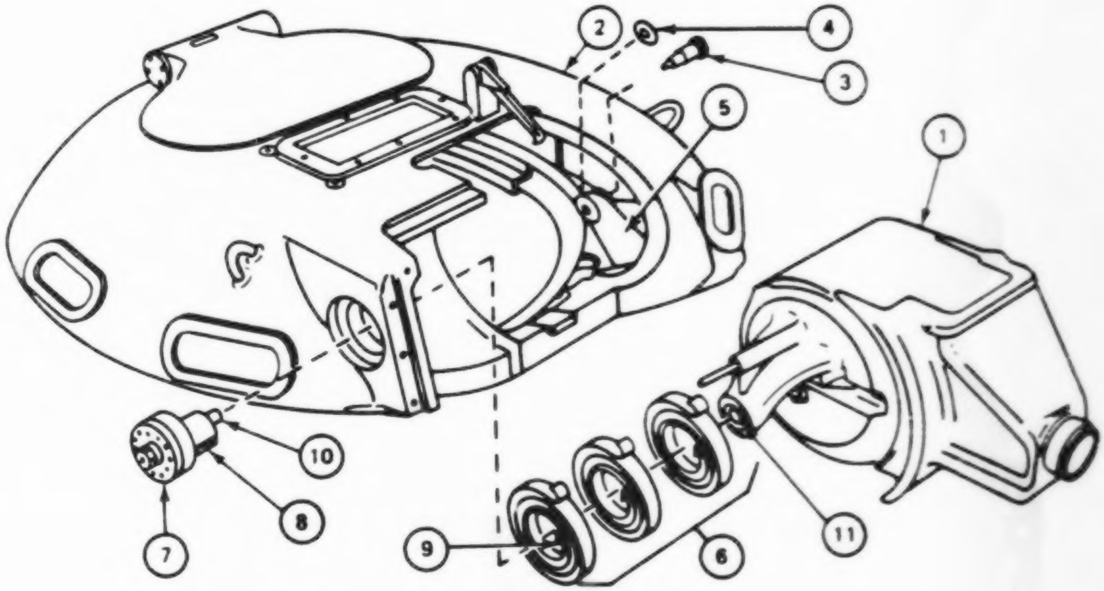
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to OFF

## 36-10. CRADLE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Cradle weighs more than 100 pounds. Two soldiers are required to put cradle into cupola. |
| 1. | Soldiers A and B: Put cradle (1) into cupola (2). |
| 2. | Soldier A: Support cradle (1) from outside cupola (2) during step 3. |
| 3. | Soldier B: Using plastic face hammer inside cupola, put shoulder bolt (3) and spacer (4) into cradle mount (5). |
| 4. | Soldier A: Hold three equilibrator springs (6) and put shaft (7) through cupola (2). |
| 5. | Soldier A: Line up grooves (8) of shaft (7) with inside tab (9) of equilibrator springs (6). When grooves and tabs are lined up, push shaft (7) in until pin (10) seats in bearing (11). |
| | GO TO FRAME 2 |

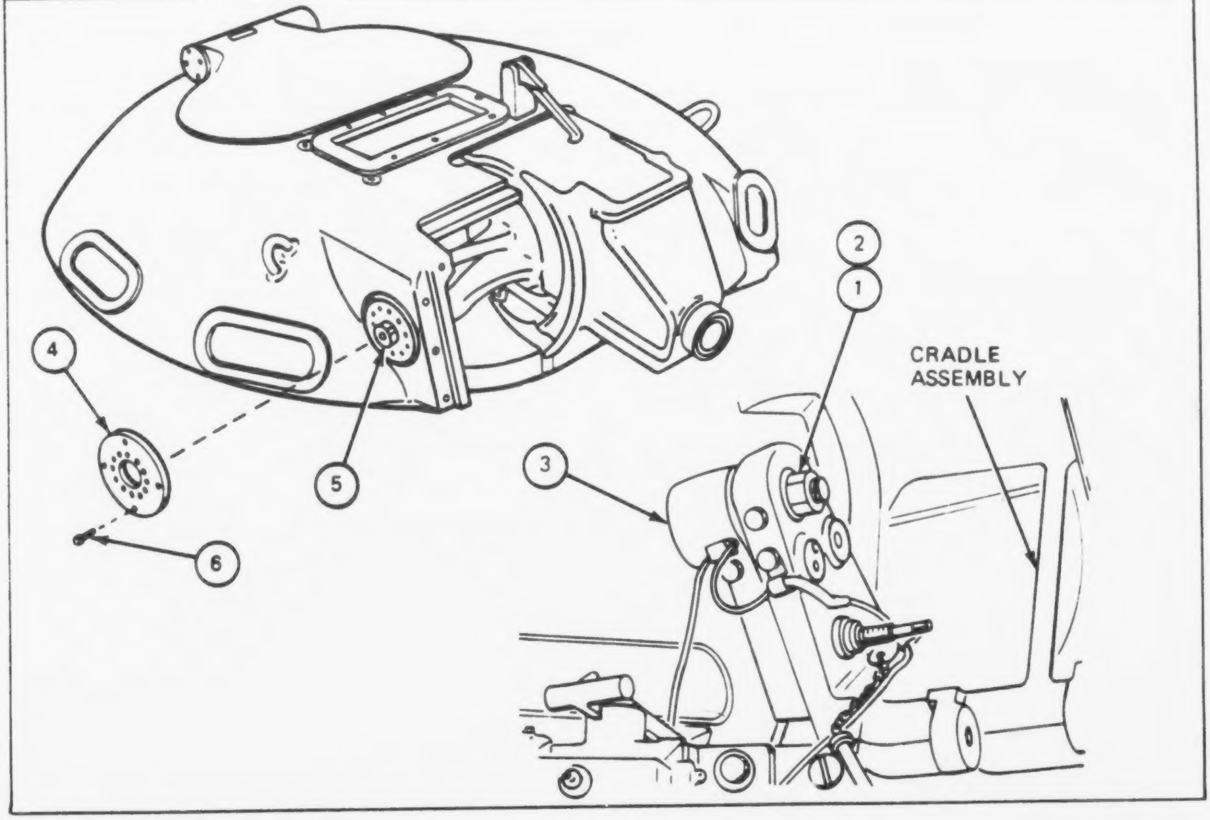


Para 36-10 Cont

## 36-10. CRADLE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

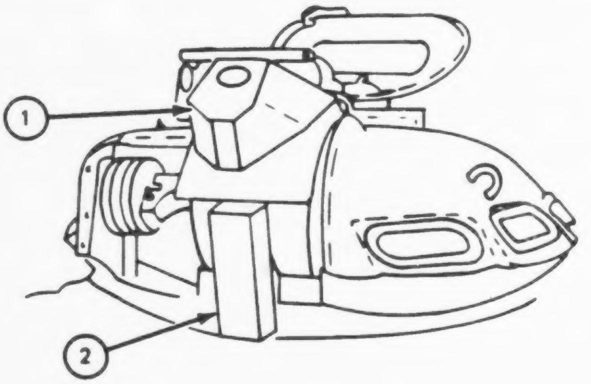
| Step | Procedure |
|---|---|
| 1. | Using 3/4" wrench and adjustable wrench, put flat washer (1) and new self-locking nut (2) on shoulder bolt (3). |
| 2. | Place retainer plate (4) on shaft (5). |
| 3. | Using 9/16" socket wrench, attach retainer plate (4) to shaft (5) with four outer screws (6). |
| 4. | Using long nose pliers, put lockwire on four outer screws (6) (JPG).<br>**NOTE**<br>Four inner screws will be put in during adjustment. |
| 5. | Using torque wrench and 3/4" socket, torque self-locking nut (2) to between 67 and 69 foot-pounds (JPG).<br>GO TO FRAME 3 |



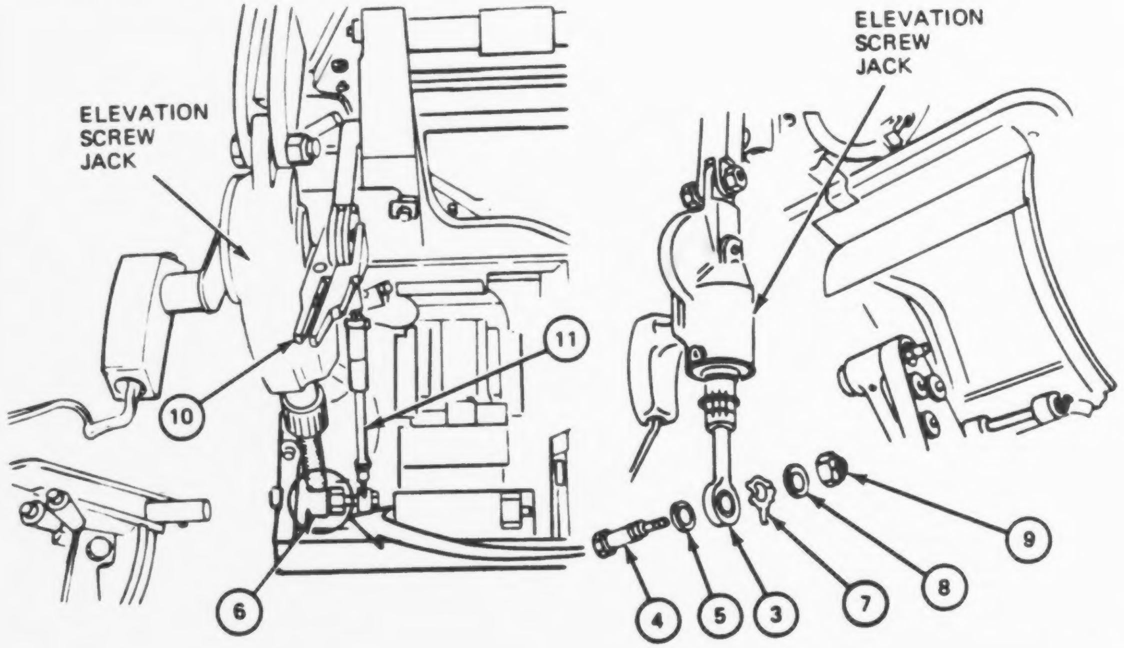
## 36-10. CRADLE INSTALLATION PROCEDURE (CONT)

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Hold cradle (1) at elevated position (TM-10). |
| 2. | Soldier B: Block cradle in this position with wooden block (2). |
| | **NOTE**<br>When installing worm gear (3) make sure that flat side of eye faces head of mounting bolt (4). The other side is notched and is used to hold spring (7). |
| | Soldier A: Do steps 2 through 5. |
| 2. | Hold elevation screw jack and worm gear (3) in place and put mounting screw (4) through flat washer (5), cradle (6), and worm gear (3). |
| 3. | Using 3/4'' wrench, put in spring (7), flat washer (8), and new self-locking nut (9). |
| 4. | Using torque wrench and 3/4'' socket, torque nut (9) to between 45 and 50 foot-pounds (JPG). |
| 5. | Squeeze quick-disconnect clamp (10) and attach periscope link (11) to periscope. |
| | GO TO FRAME 4 |



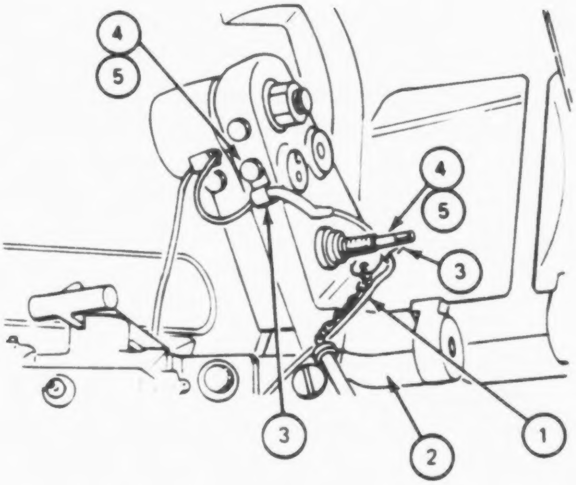
NOTE: PERISCOPE REMOVED FOR CLARITY.

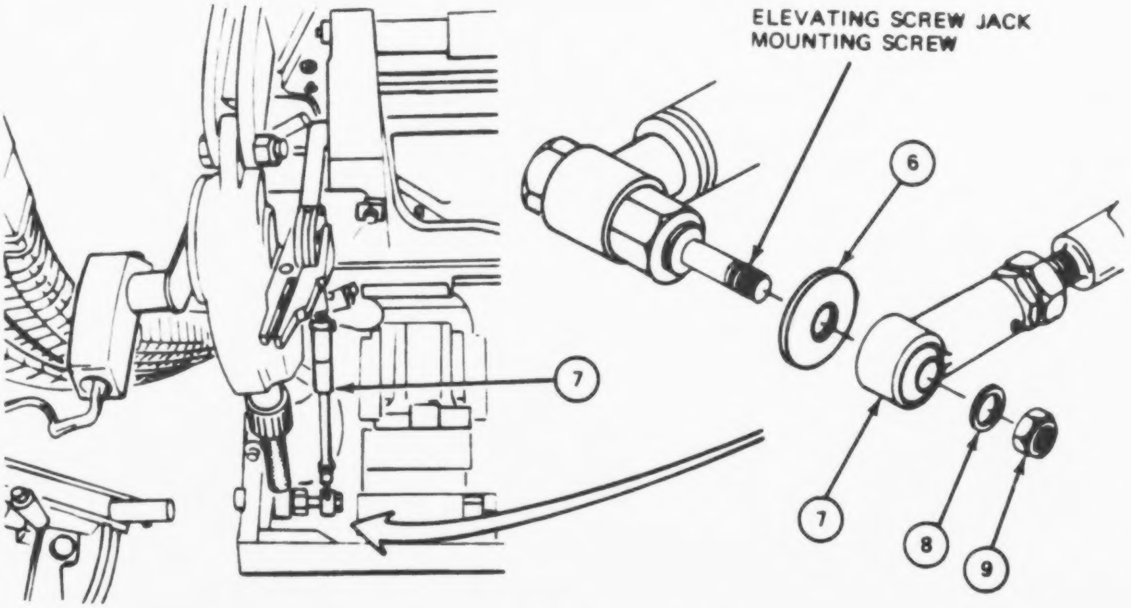

ELEVATION SCREW JACK
ELEVATION SCREW JACK
10
11
6
4
5
3
7
8
9

## 36-10. CRADLE INSTALLATION PROCEDURE (CONT)

**FRAME 4**

| Step | Procedure |
|---|---|
| 1. | Using 7/16" wrench, attach electrical harness (1) to cradle (2) with two clamps (3), two screws (4), and two lockwashers (5). |
| 2. | Put large flat washer (6), periscope link (7), and small flat washer (8) on elevation screw jack mounting screw. |
| 3. | Using 7/16" wrench, put new self-locking nut (9) on elevation screw jack mounting screw. Tighten nut.<br>**NOTE**<br>Follow-on Maintenance Action Required:<br>Install caliber .50 machine gun (TM-10).<br>Adjust cradle (para 36-13).<br>Install fixed chute (para 36-85).<br>END OF TASK |




ELEVATING SCREW JACK MOUNTING SCREW

## 36-11. CRADLE DISASSEMBLY PROCEDURE

TOOLS: 3/8'' socket head screw key (Allen wrench)
Long round nose pliers
7/16'' combination wrench
Internal retaining ring pliers
Bearing puller

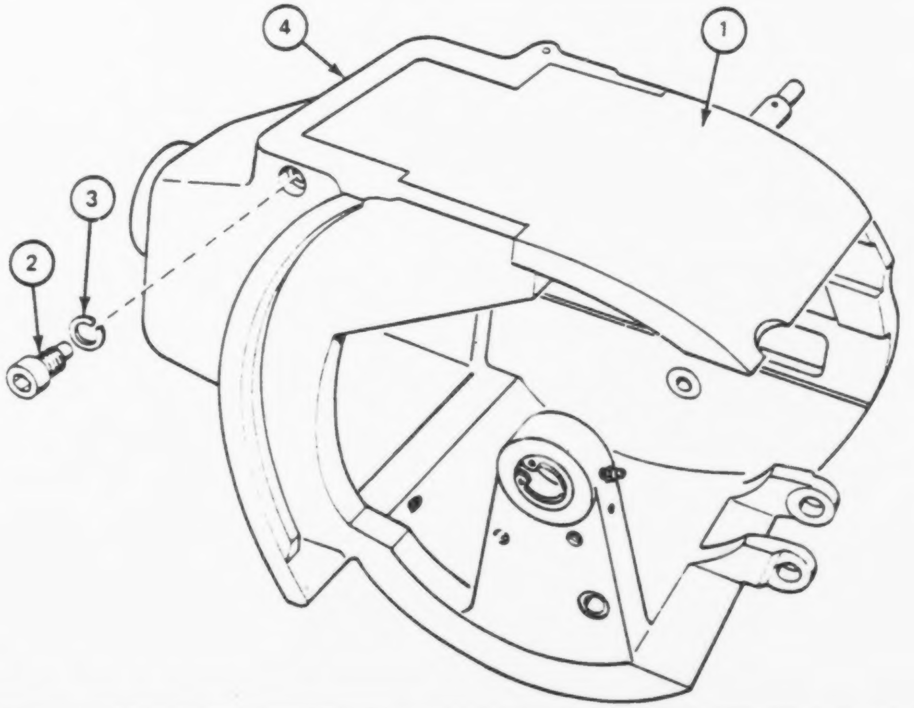
PERSONNEL: One

REFERENCES: JPG for procedures to:
Remove cotter pins
Use retaining ring pliers

PRELIMINARY PROCEDURES: Remove cradle (para 36-9)

**FRAME 1**

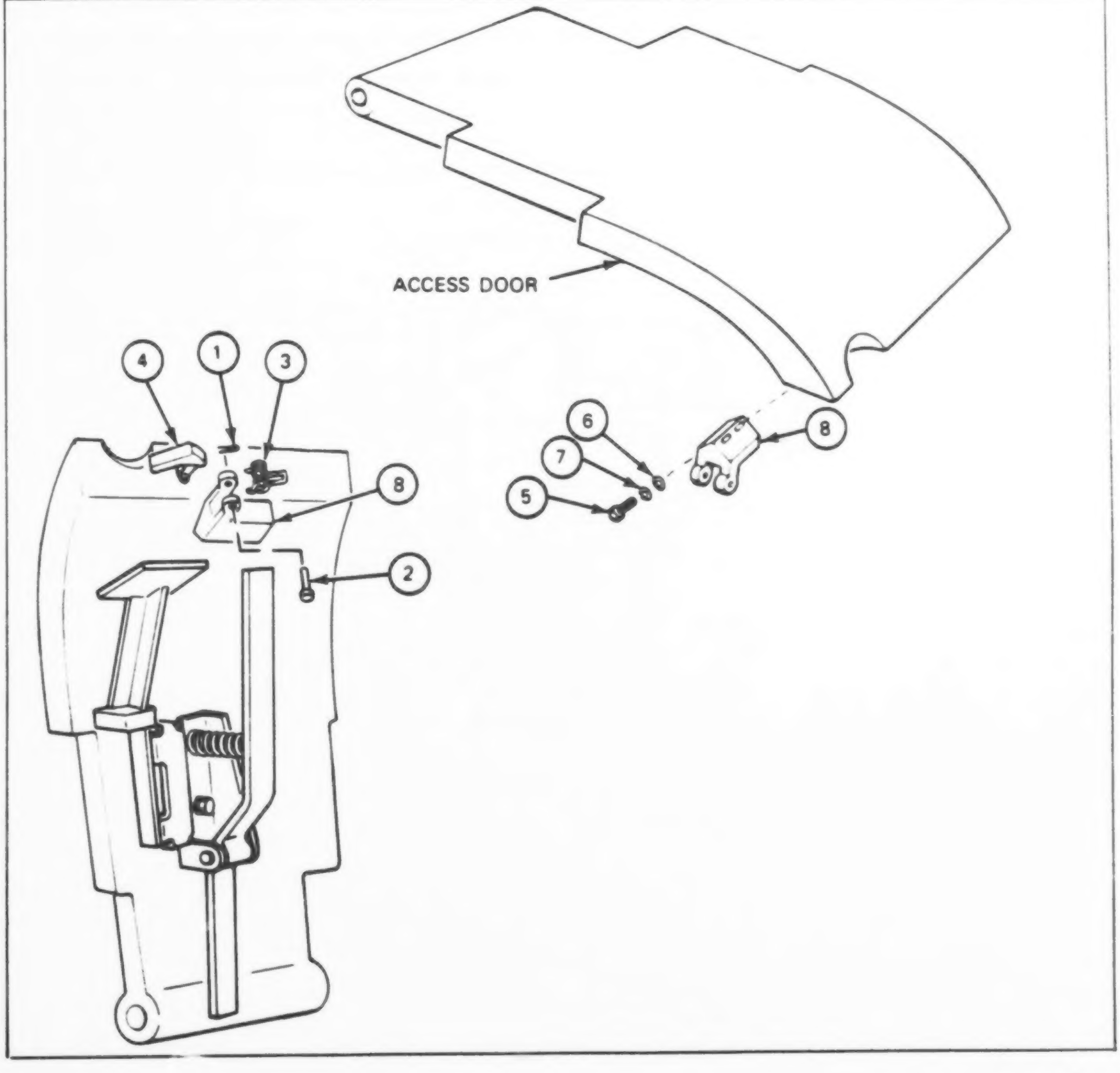
| Step | Procedure |
|---|---|
| 1. | Open access door (1). |
| 2. | Using Allen wrench, remove two screws (2) and two lockwashers (3). Remove access door (1) from cradle (4).<br>GO TO FRAME 2 |



## 36-11. CRADLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

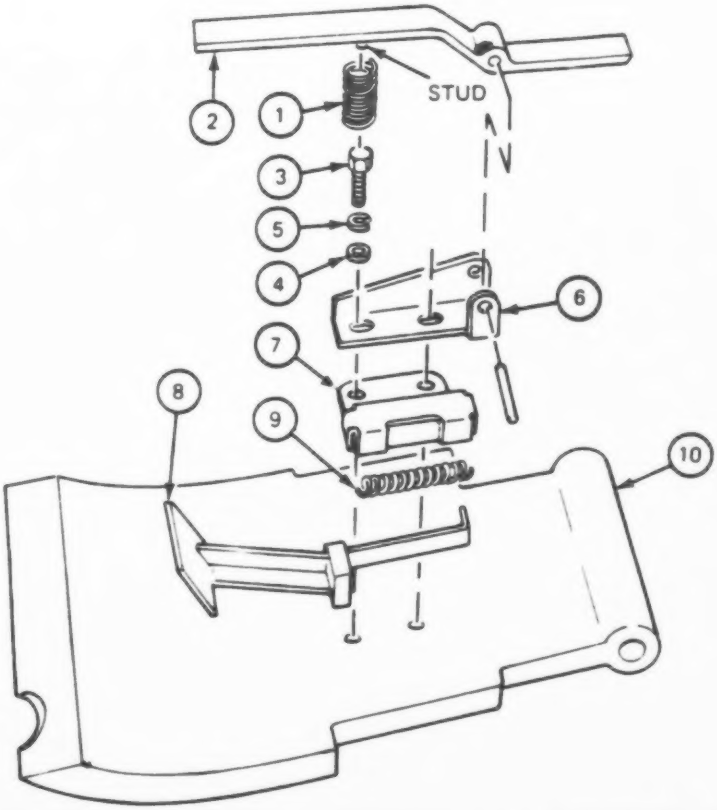
| Step | Procedure |
|---|---|
| 1. | Remove cotter pin (1), straight pin (2), spring (3), and latch (4) (JPG). |
| 2. | Using combination wrench, remove two screws (5), two flat washers (6), and two lockwashers (7). Remove bracket (8).<br>GO TO FRAME 3 |



## 36-11. CRADLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 3**

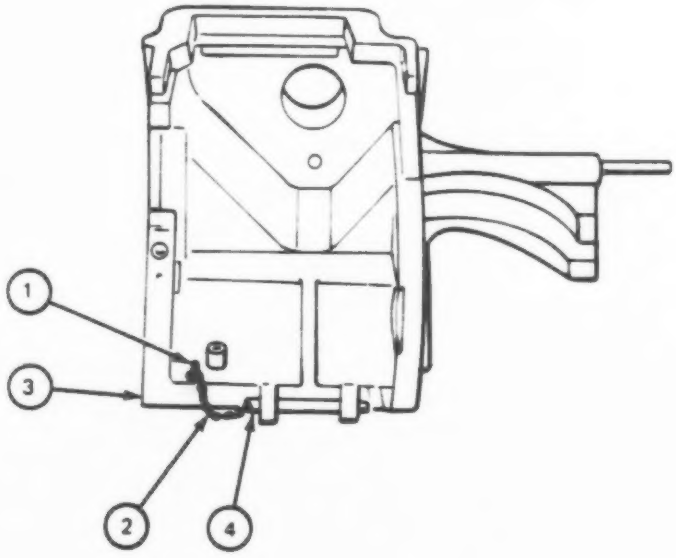
| Step | Procedure |
|---|---|
| | **NOTE**<br>Spring (1) sits between stud of lever assembly (2) and on head of screw (3). |
| 1. | Using hand or pliers, remove spring (1). |
| 2. | Using wrench, remove two screws (3), two flat washers (4), and two lockwashers (5). |
| 3. | Remove hold-open group brackets (6), (7), (8) and spring (9) from cradle access door (10). |
| | GO TO FRAME 4 |



## 36-11. CRADLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 4**

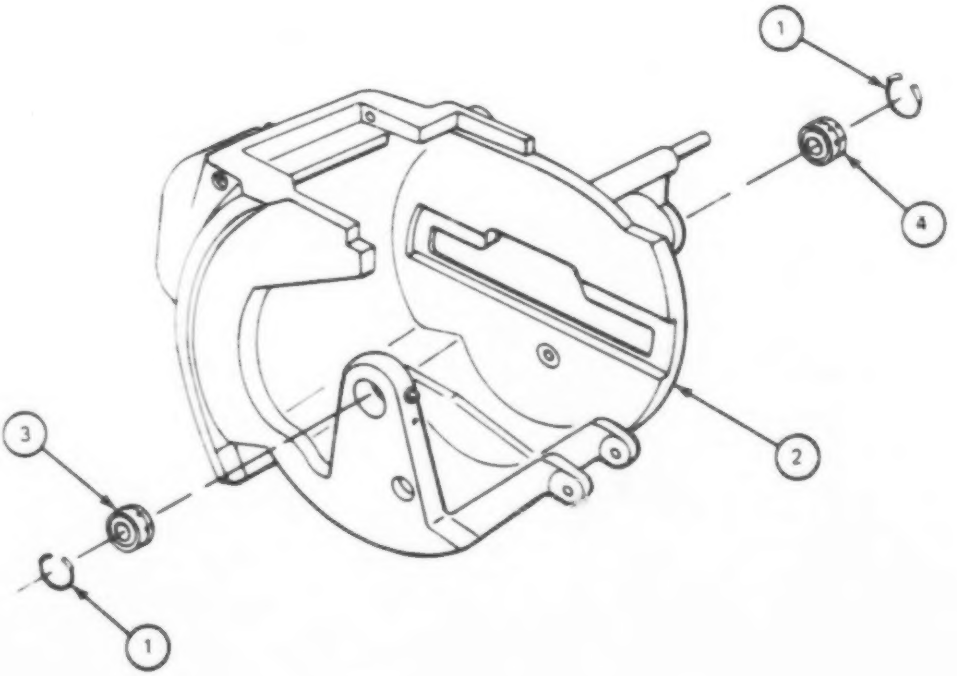
| Step | Procedure |
|---|---|
| 1. | Using pliers, open hook (1) that attaches chain (2) to welded clip on cradle (3). |
| 2. | Remove pin (4) from cradle bracket. |
|  | GO TO FRAME 5 |



## 36-11. CRADLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 5**

| Step | Procedure |
|---|---|
| 1. | Using retaining ring pliers, remove left and right retaining rings (1) from cradle (2) (JPG).<br>**NOTE**<br>If bearings (3) and (4) are tight, use bearing puller to remove bearings. |
| 2. | Push from inside of cradle (2) to remove left trunnion bearing (3). Pull out right trunnion bearing (4).<br>END OF TASK |



## 36-12. CRADLE ASSEMBLY PROCEDURE

TOOLS: Plastic face hammer
Internal retaining ring pliers
Long round nose pliers
7/16" combination wrench
7/16" socket head screw key (Allen wrench)
7/16" hex head socket (3/8" drive)
Torque wrench (0 to 100 foot-pounds), (3/8" drive)
Feeler gauge

SUPPLIES: Grease (item 11, App. A)
Cotter pin, MS24665-132

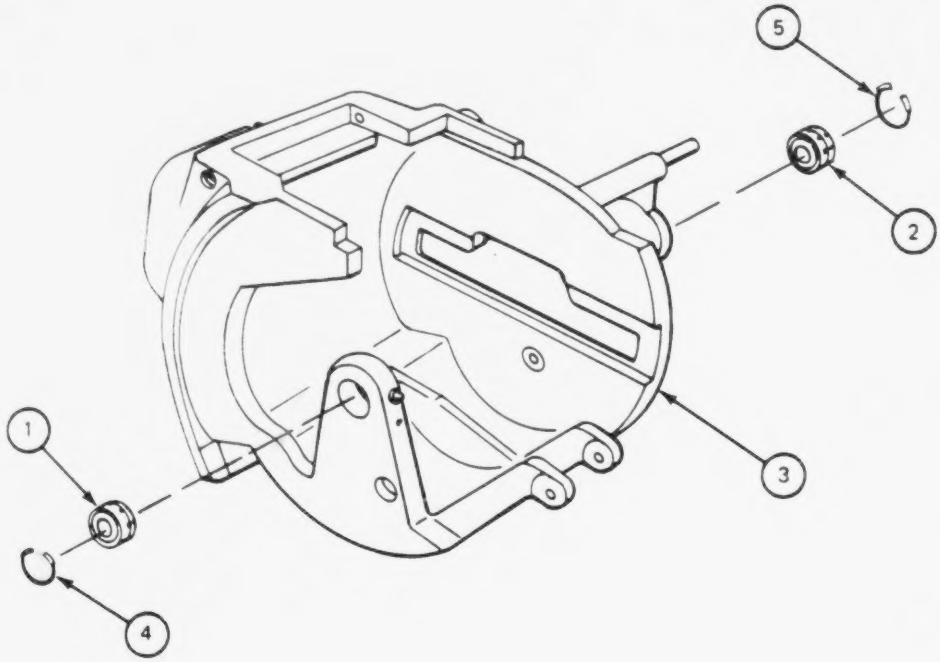
PERSONNEL: One

REFERENCES: JPG for procedures to:
Use feeler gauge
Install cotter pins
Use retaining ring pliers
Lubricate bearings
Use torque wrench

## 36-12. CRADLE ASSEMBLY PROCEDURE (CONT)

**FRAME 1**

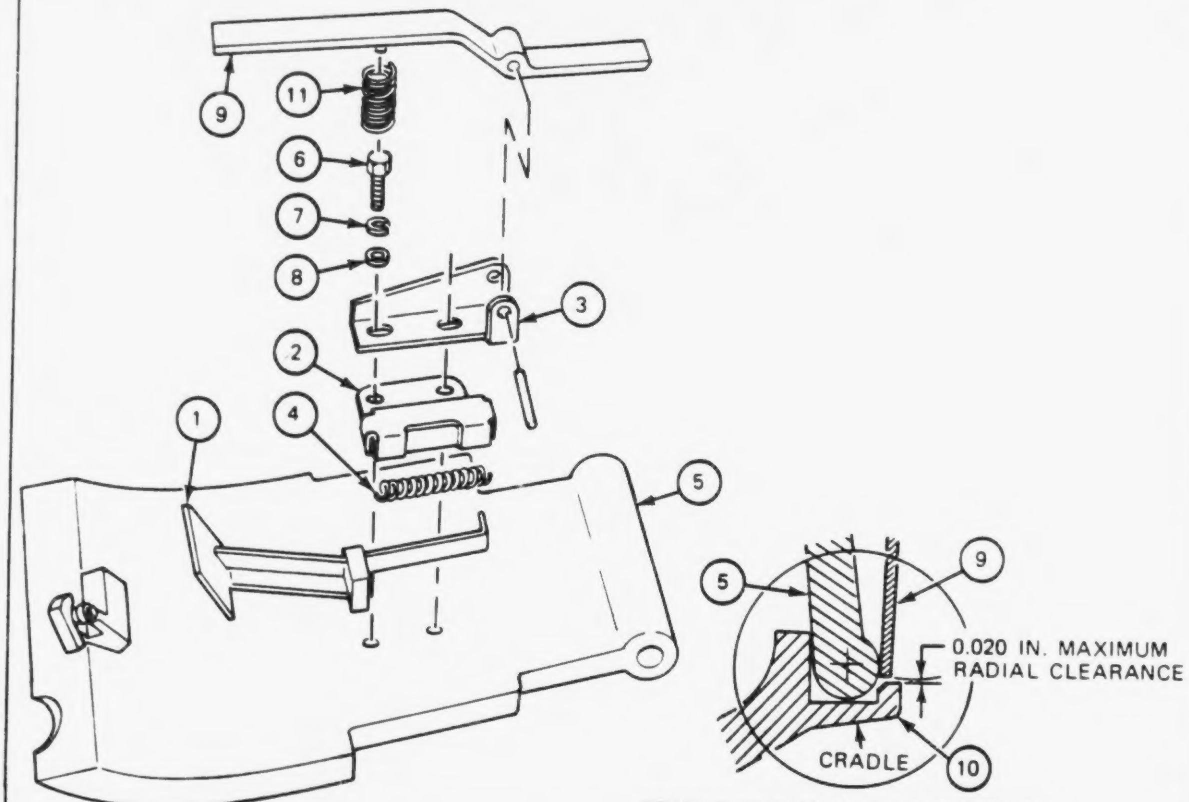
| Step | Procedure |
|---|---|
| 1. | Using grease, lubricate trunnion bearings (1) and (2) (JPG). |
| 2. | Using plastic face hammer, put left trunnion bearing (1) and right trunnion bearing (2) into cradle (3). |
| 3. | Using retaining ring pliers, put left retaining ring (4) and right retaining ring (5) into cradle (3) (JPG).<br>GO TO FRAME 2 |



## 36-12. CRADLE ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using wrench, attach hold-open group brackets (1), (2), (3) and spring (4) to cradle access door (5) with two screws (6), two lockwashers (7) and two flat washers (8). |
| 2. | Using feeler gauge, check that radial clearance between lever assembly (9) and cradle (10) is not over 0.020 inch (JPG). |
| 3. | Using wrench, loosen screws (6). |
| 4. | Move bracket (3) up or down until proper adjustment is reached. |
| 5. | Using wrench, tighten screws (6). |
| 6. | Using hand or pliers, put spring (11) between head of screw (6) and stud of lever assembly (9). |
| | GO TO FRAME 3 |



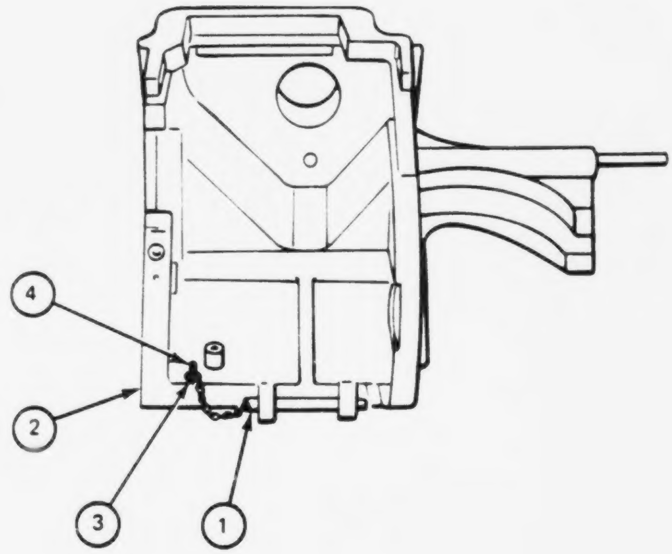
CRADLE CLEARANCE ADJUSTMENT

best copy available

## 36-12. CRADLE ASSEMBLY PROCEDURE (CONT)

**FRAME 3**

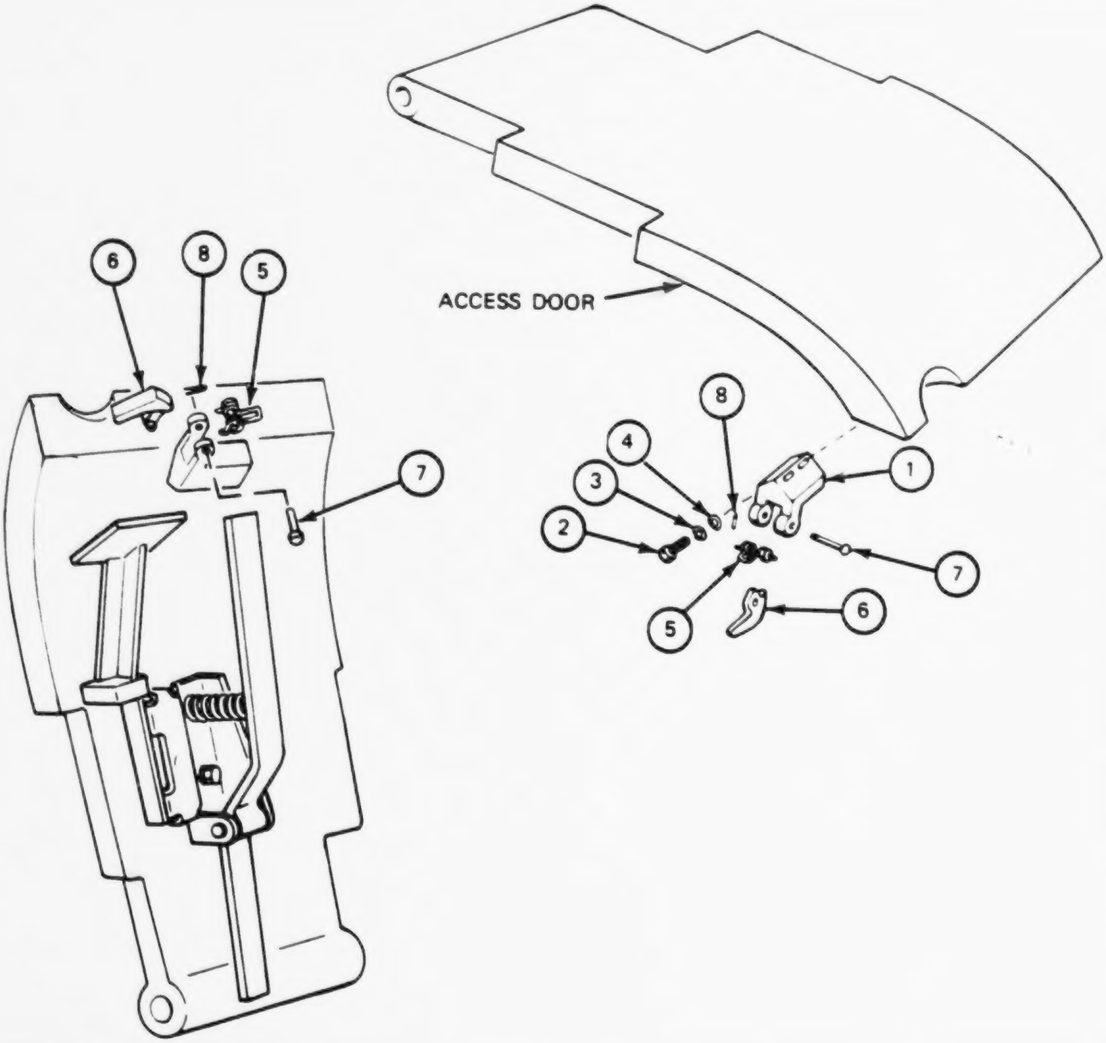
| Step | Procedure |
|---|---|
| 1. | Put pin (1) into cradle (2) bracket. |
| 2. | Using long round nose pliers, attach hook (3) to welded clip (4) on cradle (2).<br>GO TO FRAME 4 |



## 36-12. CRADLE ASSEMBLY PROCEDURE (CONT)

**FRAME 4**

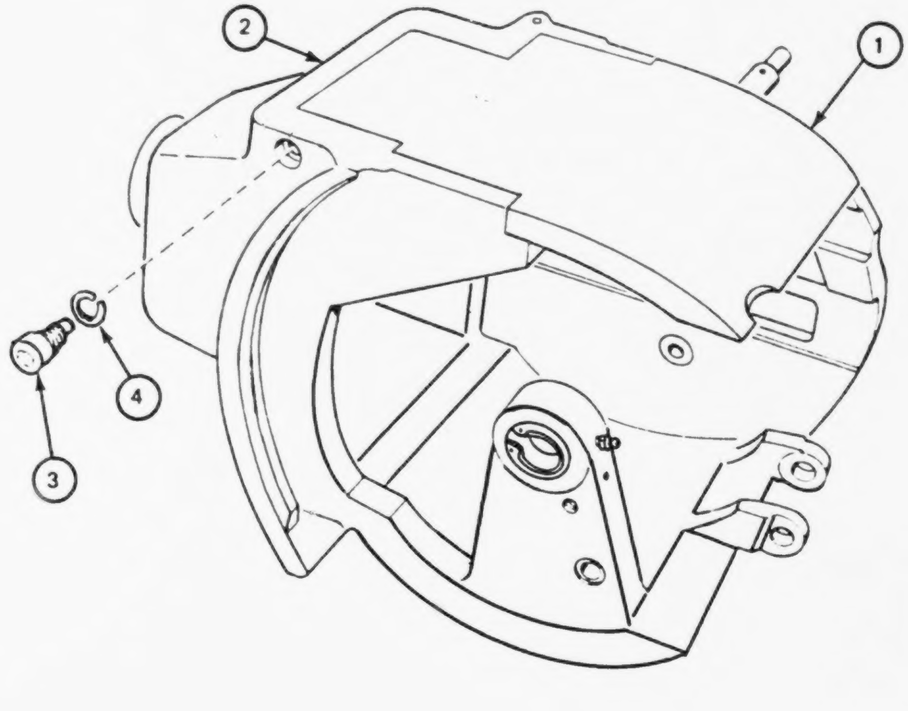
| Step | Procedure |
|---|---|
| 1. | Using 7/16" combination wrench, attach bracket (1) with two screws (2), two lockwashers (3), and two flat washers (4). |
| 2. | Attach spring (5) and latch (6) to bracket (1) with straight pin (7). |
| 3. | Put new cotter pin (8) in straight pin (7) (JPG).<br>GO TO FRAME 5 |



## 36-12. CRADLE ASSEMBLY PROCEDURE (CONT)

**FRAME 5**

| Step | Procedure |
|---|---|
| 1. | Place access door (1) on cradle (2). |
| 2. | Using Allen wrench, attach access door (1) to cradle (2) with two screws (3) and two lockwashers (4). |
| 3. | Using torque wrench and hex head socket, torque two screws (3) to between 64 and 69 foot-pounds (JPG). |
|  | END OF TASK |



## 36-13. CRADLE ADJUSTMENT PROCEDURE

TOOLS: Diagonal cutting pliers
Breaker bar (1/2" drive)
9/16" socket (1/2" drive)
1/2" drive ratchet
1-1/8" socket (1/2" drive)

SUPPLIES: 4" x 4" x 9-1/8" block of wood

PERSONNEL: Two

REFERENCES: TM 9-2350-222-10 for procedures to:
Elevate and depress caliber .50 machine gun
Install caliber .50 machine gun
JPG for procedure to remove and install lockwire

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

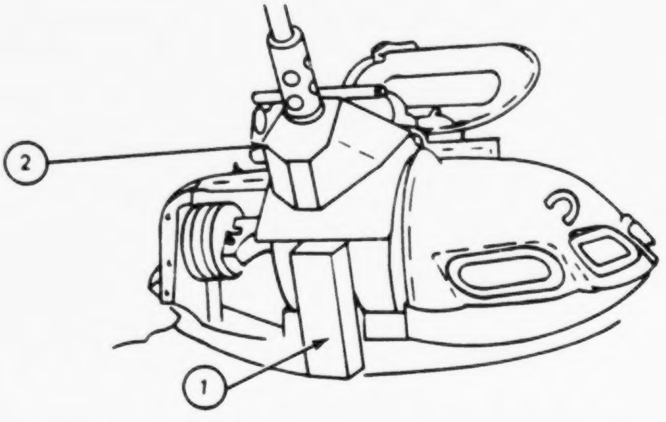
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Caliber .50 machine gun installed (TM-10)

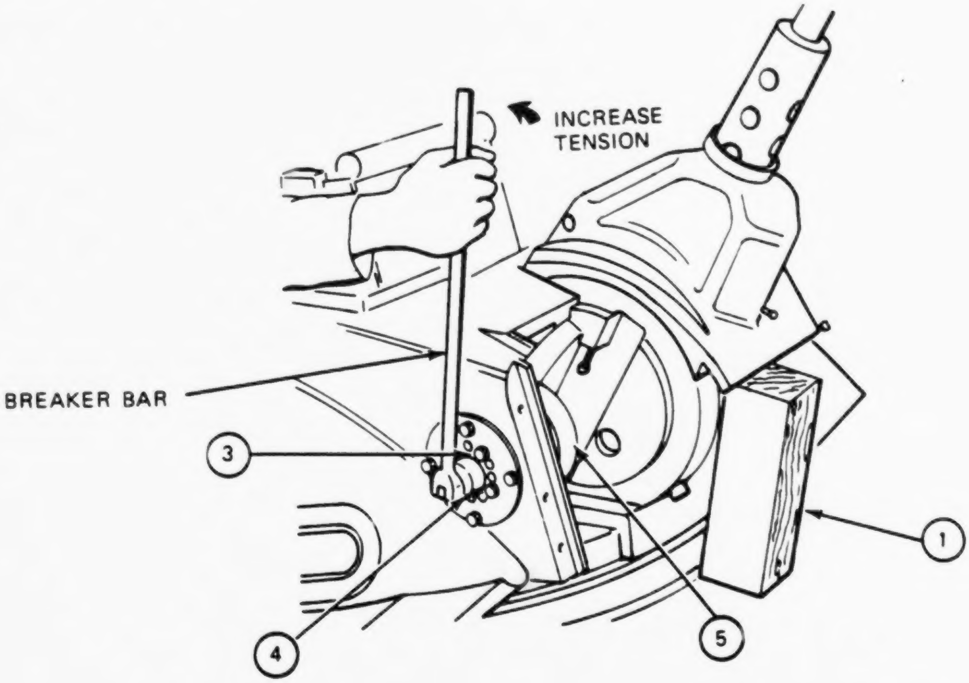
PRELIMINARY PROCEDURES: Remove ballistic cover (para 36-6)

## 36-13. CRADLE ADJUSTMENT PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Soldier A: Do steps 1 through 6. |
| 1. | Elevate caliber .50 machine gun to full elevation (TM-10). |
| 2. | Put wooden block (1) under cradle (2). |
| 3. | Lower caliber .50 machine gun until cradle (2) rests on wooden block (1) (TM-10). |
| | **NOTE**<br>If four inner screws are not installed, omit steps 4 thru 7. |
| 4. | Remove lockwire from four inner screws (3) (JPG). |
| 5. | Using 9/16" socket wrench, loosen, but do not remove, four inner screws (3). |
| | **CAUTION**<br>Shaft (4) is under spring tension. Be careful when releasing tension not to damage equipment. |
| 6. | Using breaker bar and 1-1/8" socket, pull counterclockwise to hold tension on shaft (4) during steps 7 through 9. |
| 7. | Soldier B: Using 9/16" socket wrench, remove four screws (3). |
| 8. | Soldier B: Elevate caliber .50 machine gun and remove block (1) (TM-10). |
| 9. | Soldier B: Test elevation and depression of caliber .50 machine gun using hand crank. Balance should be such that there is no excessive hand crank effort or binding when machine gun is elevated or depressed through full range of operation (TM-10). |
| 10. | Soldier A: Using breaker bar and 1-1/8" socket, turn shaft (4) as required to adjust tension of springs (5). Pull counterclockwise to decrease elevating effort. Pull clockwise to decrease depression effort.<br>GO TO FRAME 2 |


2
1


INCREASE TENSION
BREAKER BAR

## 36-13. CRADLE ADJUSTMENT PROCEDURE (CONT)

**FRAME 2**

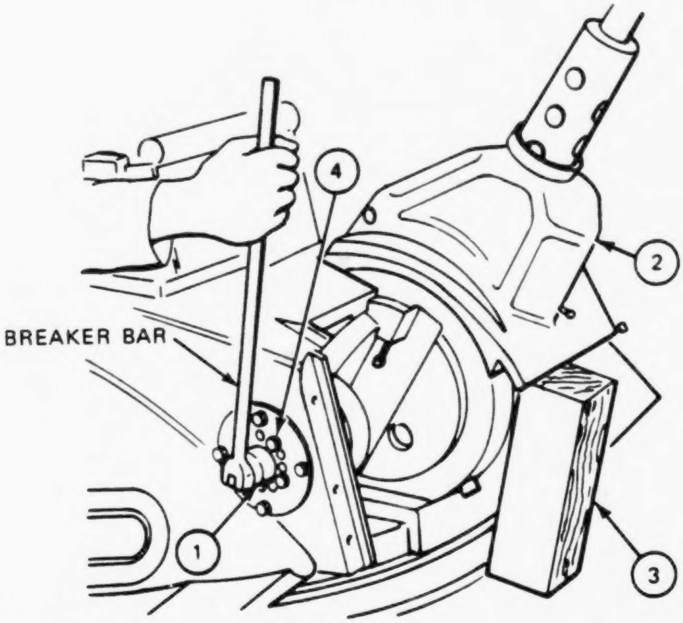
| Step | Procedure |
|---|---|
| 1. | Soldier A: Using breaker bar and 1-1/8'' socket, hold shaft (1) in place during steps 2 and 3. |
| 2. | Soldier B: Elevate caliber .50 machine gun and cradle (2) and put block of wood (3) under cradle (TM-10). Lower cradle on block of wood. |
| 3. | Soldier B: Using 9/16'' socket wrench, put four inner screws (4) in holes nearest to proper adjustment. Tighten screws. |
| 4. | Soldier A: Remove breaker bar and socket. |
| 5. | Soldier A: Put lockwire in four screws (4) (JPG). |

**NOTE**

Follow-on Maintenance Action Required:

Install ballistic cover (para 36-7).

END OF TASK



## Section 5. INTERCONNECTING BOX

### 36-14. MAINTENANCE PROCEDURES INDEX

|  | Tasks |  |
|---|---|---|
| **Equipment Item** | **Removal** | **Installation** |
| Interconnecting Box | 36-15 | 36-16 |

### 36-15. INTERCONNECTING BOX REMOVAL PROCEDURE

TOOLS: Spanner wrench (adjustable hook type)
7/16" combination wrench
3/8" drive ratchet
6" extension (3/8" drive)
7/16" socket (3/8" drive)
12" adjustable wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to remove radio receiver R-442
JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

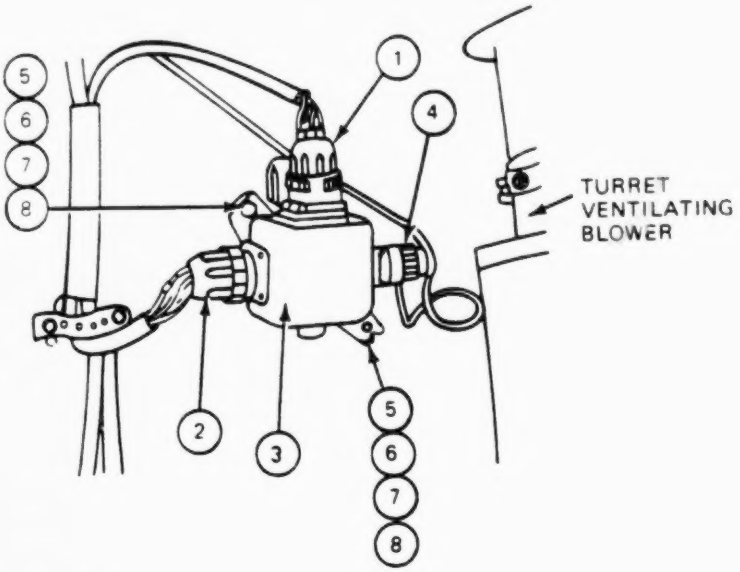
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Interconnecting Box | FO-2 | 6 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Radio receiver R-442 removed (TM-10)
Interconnecting box radio connector removed (JPG)

## 36-15. INTERCONNECTING BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using spanner wrench, disconnect electrical connectors (1) and (2) from interconnecting box (3) (JPG). |
| 2. | Using adjustable wrench, remove connector (4) (JPG). |
| 3. | Using combination wrench and socket wrench, remove two nuts (5), two lockwashers (6), two flat washers (7) and two screws (8). |
| 4. | Remove interconnecting box (3). |
|  | END OF TASK |



## 36-16. INTERCONNECTING BOX INSTALLATION PROCEDURE

TOOLS: Spanner wrench
12" adjustable wrench
7/16" combination wrench
7/16" socket (3/8" drive)
3/8" drive ratchet
6" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to install radio receiver R-442
JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

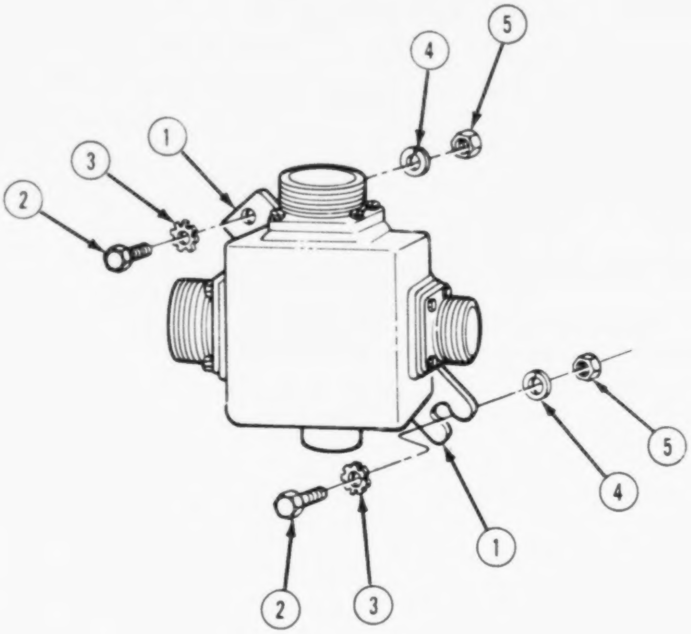
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Interconnecting Box | FO-2 | 6 |

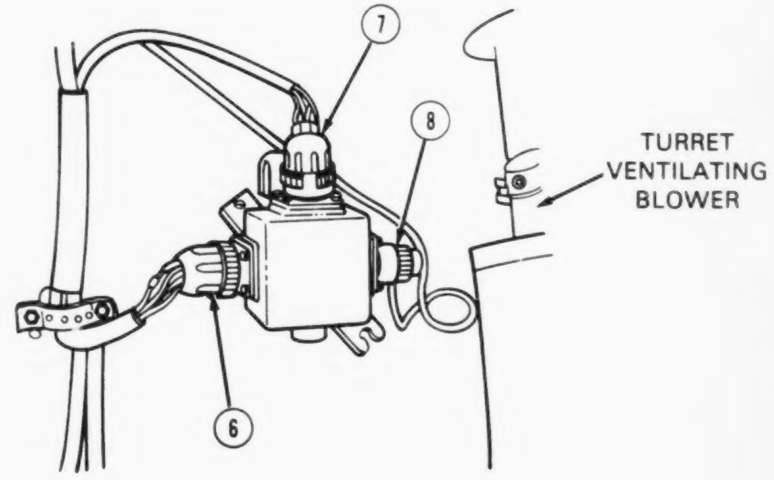
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-16. INTERCONNECTING BOX INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place interconnecting box (1) in mounting position against cupola wall brackets. |
| 2. | Put two screws (2) with two lockwashers (3) through interconnecting box bracket (1) and through turret wall brackets. |
| 3. | Put two lockwashers (4) and two nuts (5) on two screws (2). |
| 4. | Using combination wrench and socket wrench, tighten screws (2) and nuts (5). |
| 5. | Using spanner wrench, connect connector (6) of cupola right hand contact board wiring harness (JPG). |
| 6. | Using spanner wrench, connect connector (7) of cupola left hand contact board wiring harness (JPG). |
| 7. | Using adjustable wrench, connect connector (8) of cupola power relay and power switch wiring harness (JPG). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install interconnecting box radio connector (JPG).<br>Install radio receiver R-442 (TM-10). |
| | END OF TASK |




TURRET VENTILATING BLOWER

## Section 6. RESISTOR

### 36-17. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Resistor (Early Model) | 36-18 | 36-19 |
| Resistor (Late Model) | 36-19.1 | 36-19.2 |

### 36-18. RESISTOR (EARLY MODEL) REMOVAL PROCEDURE

TOOLS: 7/16 in. combination wrench
3/8 in. combination wrench
Flat-tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

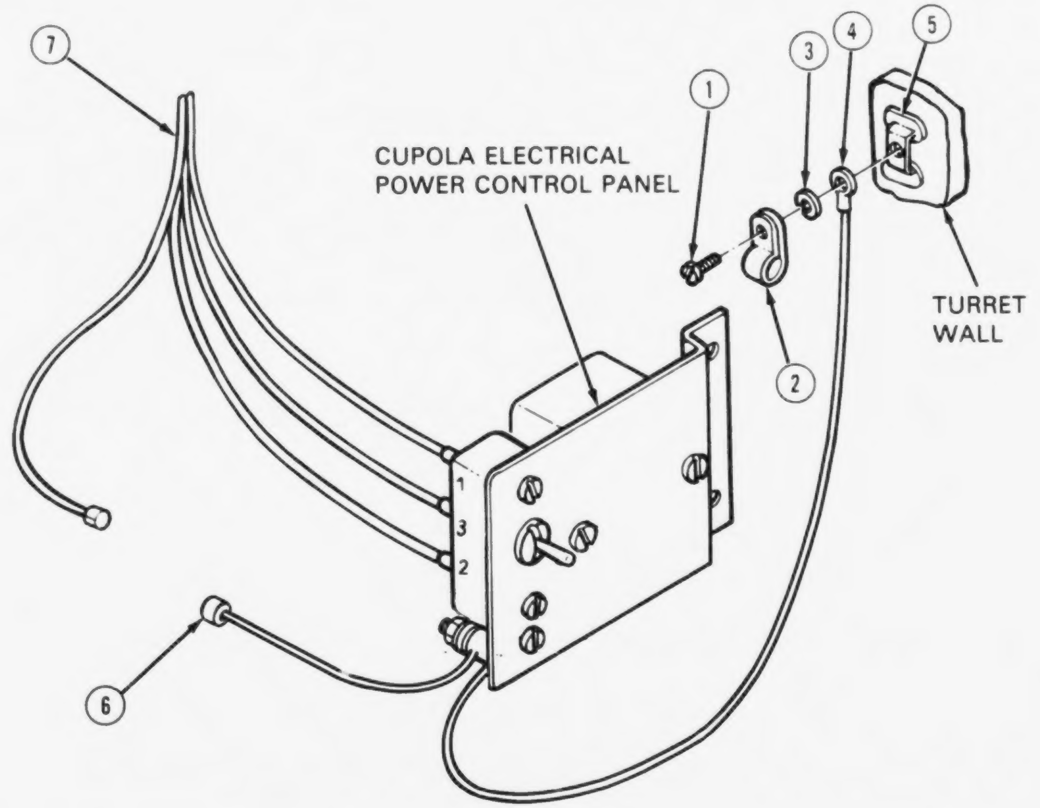
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF.

## 36-18. RESISTOR (EARLY MODEL) REMOVAL PROCEDURE (CONT)

**FRAME 1**

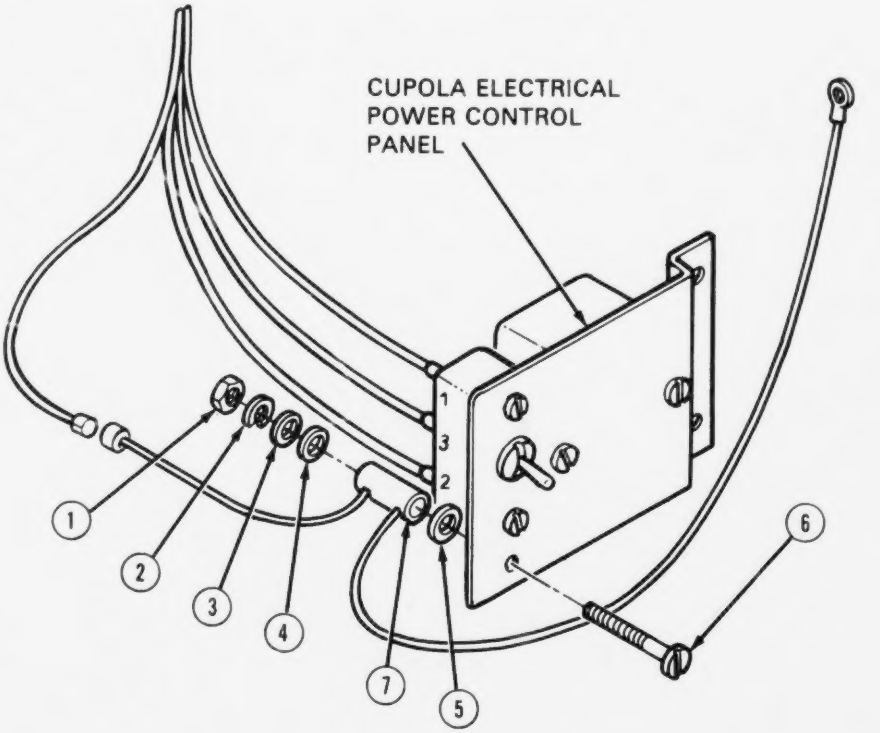
| STEP | PROCEDURE |
|---|---|
| 1. | Using 7/16 inch combination wrench, remove bolt (1), clamp (2), lockwasher (3), and ground wire lug (4) from bracket (5) on turret wall. |
| 2. | Disconnect electrical connector (6) from wiring harness (7) lead (JPG). |
|  | **GO TO FRAME 2** |


7
5
4
3
1
CUPOLA ELECTRICAL POWER CONTROL PANEL
TURRET WALL
2
1
3
2
6

## 36-18. RESISTOR (EARLY MODEL) REMOVAL PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Using 3/8 inch combination wrench and screwdriver, remove nut (1), lockwasher (2), flat washer (3), insulator (4), insulator (5), and screw (6). |
| 2. | Remove resistor (7) with attached wires.<br>**END OF TASK** |


CUPOLA ELECTRICAL POWER CONTROL PANEL
1
3
2
①
②
③
④
⑦
⑤
⑥

## 36-19. RESISTOR (EARLY MODEL) INSTALLATION PROCEDURE

TOOLS:
7/16 in. combination wrench
3/8 in. combination wrench
Flat-tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

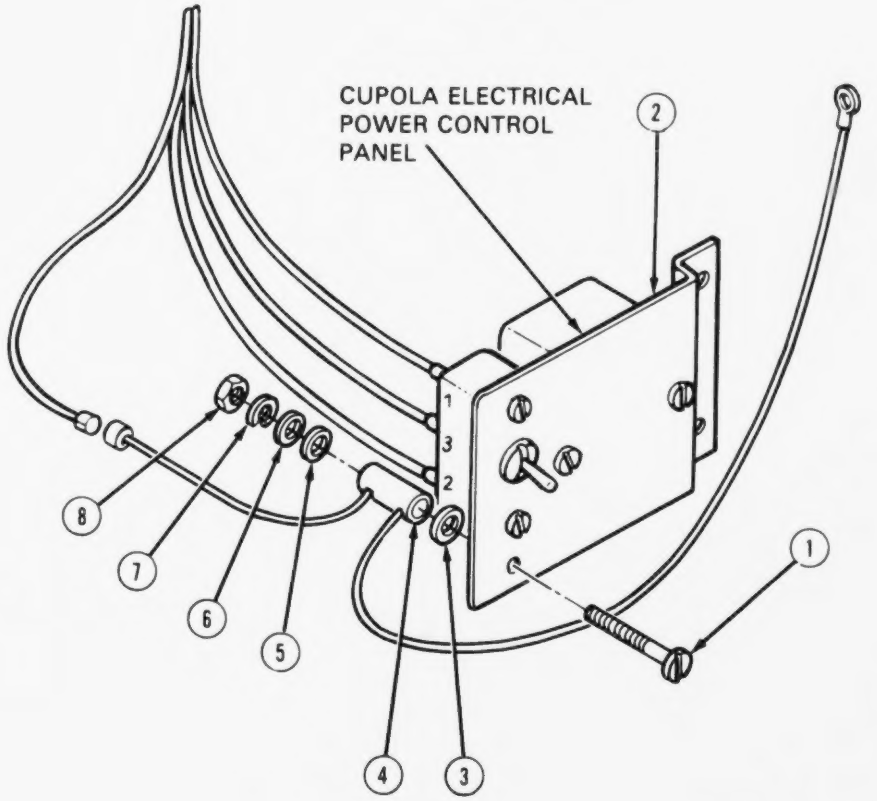
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-19. RESISTOR (EARLY MODEL) INSTALLATION PROCEDURE (CONT)

**FRAME 1**

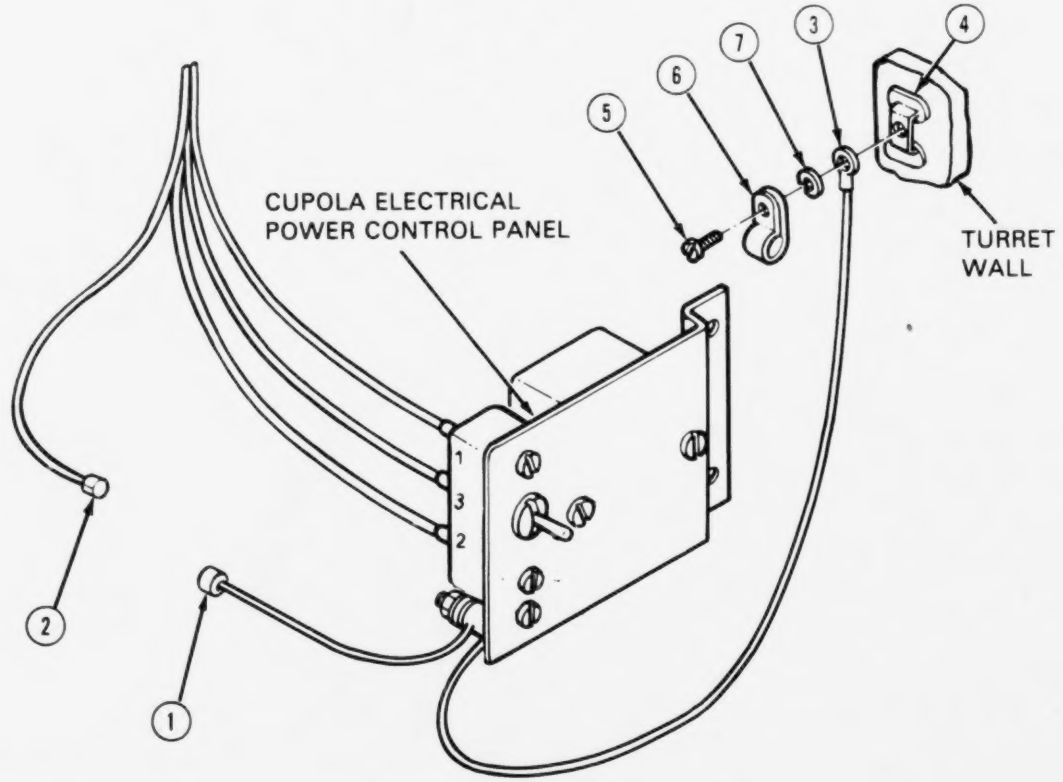
| STEP | PROCEDURE |
|---|---|
| 1. | Insert screw (1) through panel (2). |
| 2. | Put insulator (3), resistor (4), insulator (5), flat washer (6), lockwasher (7), and nut (8) on screw (1). |
| 3. | Using 3/8 inch combination wrench to hold nut (8), tighten screw (1) with screwdriver. |
|  | **GO TO FRAME 2** |


CUPOLA ELECTRICAL POWER CONTROL PANEL
2
1
3
2
8
7
6
5
1
4
3

## 36-19. RESISTOR (EARLY MODEL) INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Connect electrical connectors (1) and (2) (JPG). |
| 2. | Place ground lug (3) in position at bracket (4) on turret wall. |
| 3. | Insert bolt (5) through clamp (6), lockwasher (7), ground lug (3) and into bracket (4). |
| 4. | Using 7/16 inch combination wrench, tighten bolt (5). |
|  | **END OF TASK** |


7
3
4
6
5
CUPOLA ELECTRICAL
POWER CONTROL PANEL
TURRET
WALL
1
3
2
2
1

## 36-19.1 RESISTOR (LATE MODEL) REMOVAL PROCEDURE

TOOLS: 7/16 in. combination wrench
Phillips screwdriver #2

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

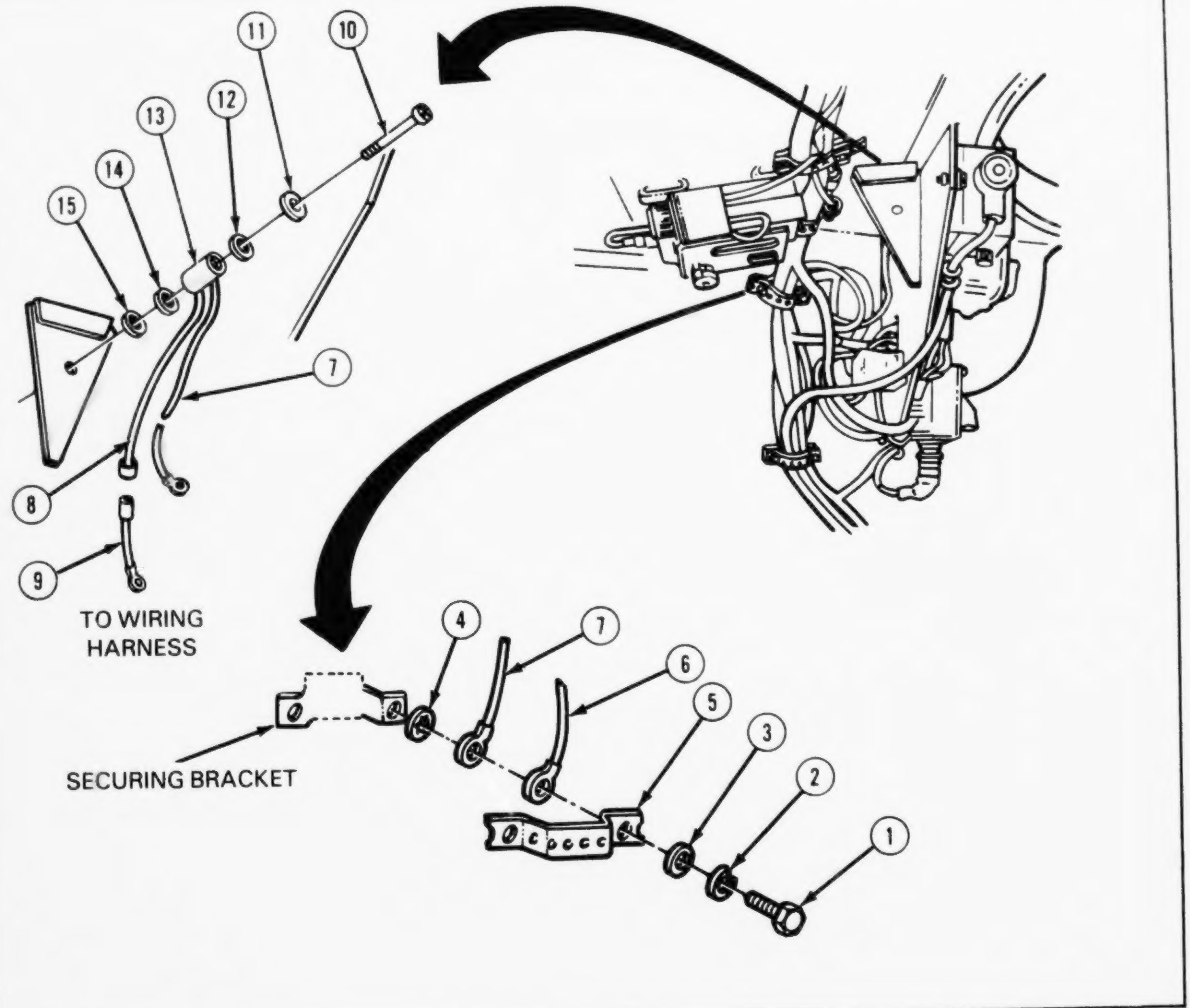
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-19.1 RESISTOR (LATE MODEL) REMOVAL PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using 7/16 inch wrench remove screw (1), lockwasher (2), flat washer (3) and star lockwasher (4), securing one end of strap (5), grenade power box ground lead (6), and resistor ground lead (7). |
| 2. | Disconnect electrical connector (8) from wiring harness lead (9) (JPG). |
| 3. | Using screwdriver, remove screw (10), lockwasher (11), spacer (12), resistor (13) with attached wires, spacer (14) and flatwasher (15). |
|  | **END OF TASK** |


11
10
13
12
14
15
7
8
9
TO WIRING HARNESS
4
7
6
5
3
2
1
SECURING BRACKET

## 36-19.2 RESISTOR (LATE MODEL) INSTALLATION PROCEDURE

TOOLS: 7/16 in. combination wrench
Phillips screwdriver #2

SUPPLIES: Lockwasher (MS35333-39) (1 Required)

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

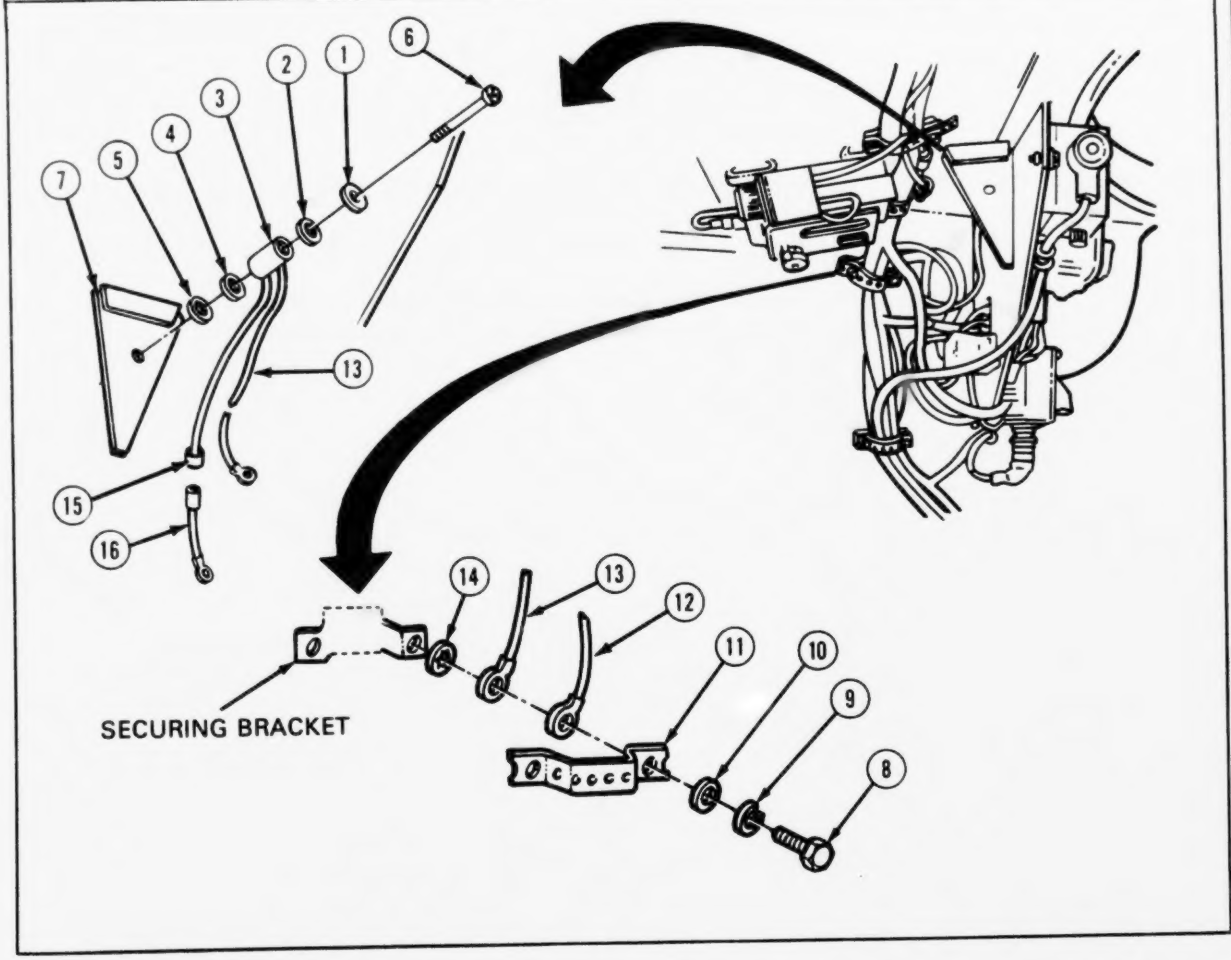
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-19.2 RESISTOR (LATE MODEL) INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| STEP | PROCEDURE |
|---|---|
| 1. | Put lockwasher (1), spacer (2), resistor (3), spacer (4) and flatwasher (5) on screw (6). |
| 2. | Using screwdriver, install screw (6) in panel (7). |
| 3. | Install screw (8), lockwasher (9), flat washer (11), to secure one end of strap (11), grenade power box ground lead (12), and resistor ground lead (13). And star lockwasher (14). |
| 4. | Use 7/16 inch wrench to tighten screw (8). |
| 5. | Connect electrical connector (15) to wiring harness lead (16) (JPG). |
|  | **END OF TASK** |



## Section 7. CUPOLA POWER SWITCH

### 36-20. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Cupola Power Switch | 36-21 | 36-22 |

### 36-21. CUPOLA POWER SWITCH REMOVAL PROCEDURE

TOOLS: Flat-tip screwdriver

SUPPLIES: Pencil
Masking tape (item 25, App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF.

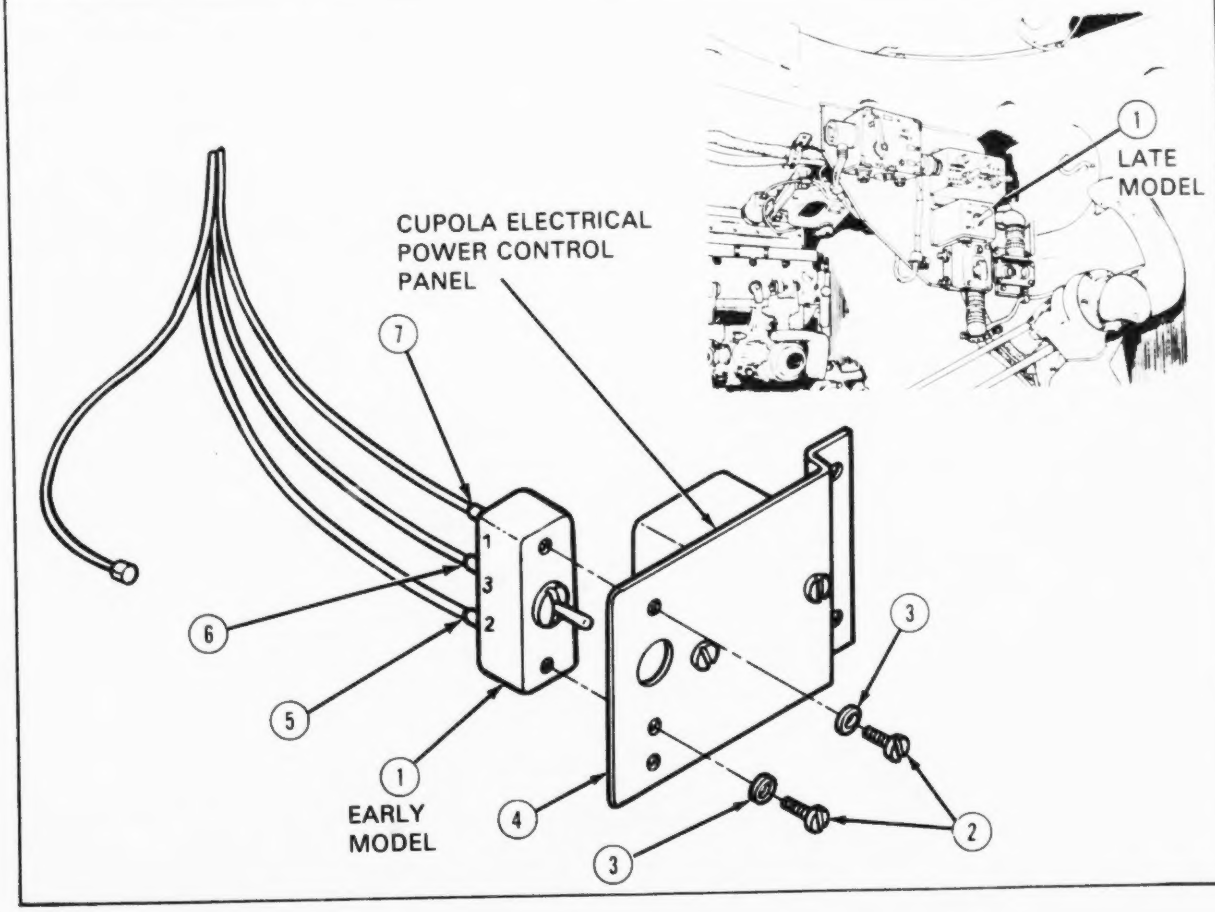
**NOTE**

**Except for location, the removal procedures for the cupola power switch are the same for the early or late models.**

## 36-21. CUPOLA POWER SWITCH REMOVAL PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using pencil and masking tape, mark top of switch (1) so that switch is put in proper position during installation. |
| 2. | Using screwdriver, remove two screws (2) and two lockwashers (3). |
| 3. | Remove switch (1) from panel (4). |
| 4. | Disconnect electrical connector (5) of circuit 111C from switch terminal 2 (JPG). |
| 5. | Disconnect electrical connector (6) of circuit 111B from switch terminal 3 (JPG). |
| 6. | Disconnect electrical connector (7) of circuit 111 from switch terminal 1 (JPG). |
|  | **END OF TASK** |


1
LATE MODEL
CUPOLA ELECTRICAL POWER CONTROL PANEL
7
1
3
2
6
5
1
EARLY MODEL
4
3
2
3

## 36-22. CUPOLA POWER SWITCH INSTALLATION PROCEDURE

TOOLS: Flat-tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF.

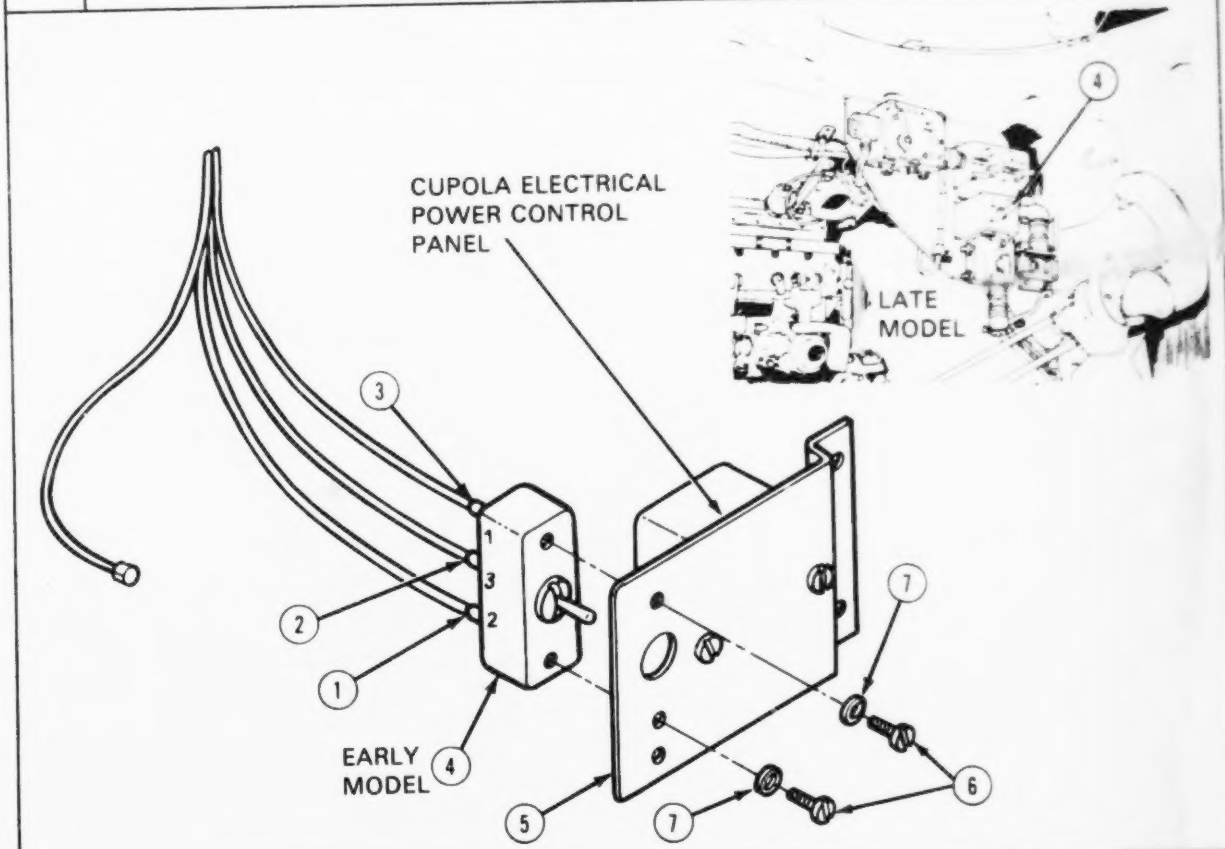
### NOTE

**Except for location, the installation procedures for the cupola power switch are the same for the early or late models.**

## 36-22. CUPOLA POWER SWITCH INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| | **NOTE**<br>**Check that mark with masking tape made at removal (para 36-21) to show upright position of switch (4) is on top.** |
| 1. | Connect electrical connector (1) of circuit 111C to switch terminal 2 (JPG). |
| 2. | Connect electrical connector (2) of circuit 111B to switch terminal 3 (JPG). |
| 3. | Connect electrical connector (3) of circuit 111 to switch terminal 1 (JPG). |
| 4. | Place switch (4) in mounting position against back of panel (5). |
| 5. | Using screwdriver, put two screws (6) with two lockwashers (7) through panel (5) and into switch (4). |
| | **END OF TASK** |


4
CUPOLA ELECTRICAL POWER CONTROL PANEL
LATE MODEL
3
1
3
2
2
1
EARLY MODEL
4
5
7
7
6

## Section 8. CUPOLA POWER RELAY

### 36-23. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks | |
|---|---|---|
| | Removal | Installation |
| Cupola Power Relay | 36-24 | 36-25 |

### 36-24. CUPOLA POWER RELAY REMOVAL PROCEDURE

TOOLS: 12 in. adjustable wrench
7/16 in. combination wrench
Flat-tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Cupola Electrical Power Control Panel | FO-2 | 2 |

PRELIMINARY PROCEDURES: Remove cupola power switch (para 36-21)

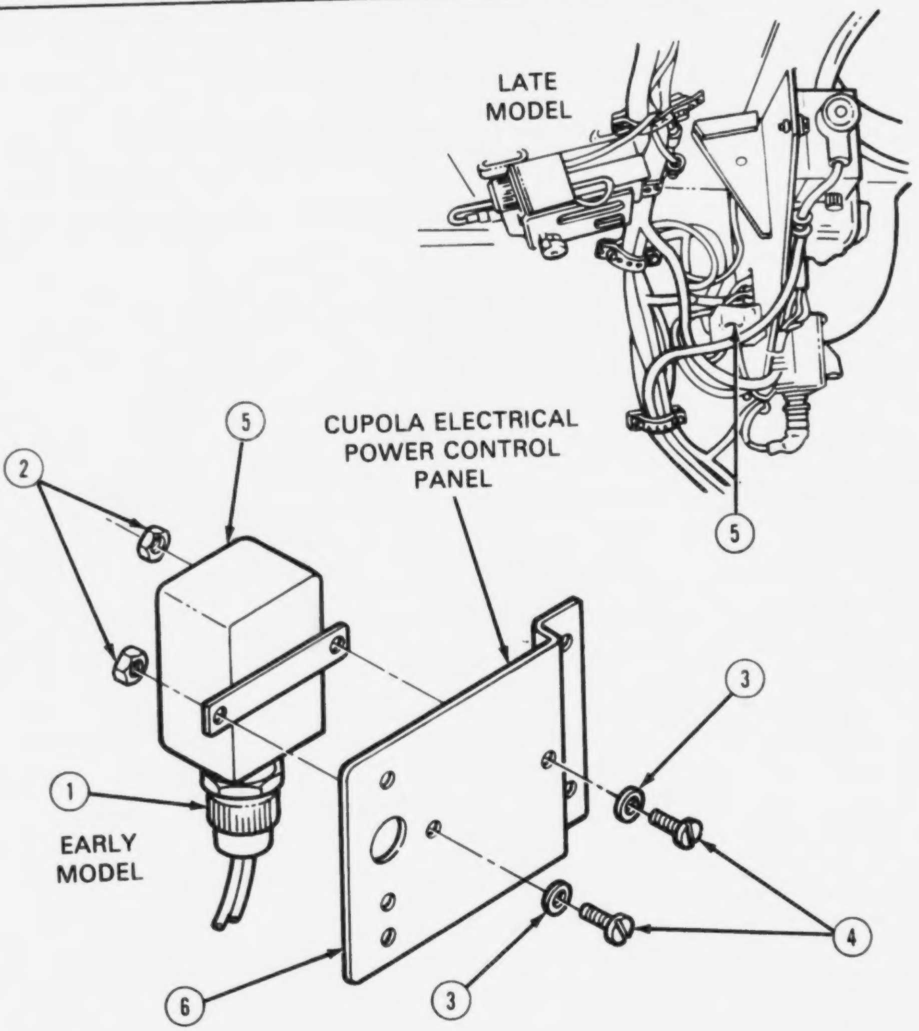
**NOTE**

**Except for location, the removal procedures for the cupola power relay are the same for the early or late models.**

## 36-24 CUPOLA POWER RELAY REMOVAL PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Using adjustable wrench, remove electrical connector (1) (JPG). |
| 2. | Using combination wrench and screwdriver, remove two nuts (2), two lockwashers (3), and two screws (4) from relay (5). |
| 3. | Remove relay (5) from mounting panel (6). |
|  | **END OF TASK** |


LATE MODEL
5
5
CUPOLA ELECTRICAL POWER CONTROL PANEL
2
3
1
EARLY MODEL
4
6
3

## 36-25. CUPOLA POWER RELAY INSTALLATION PROCEDURE

TOOLS:
12 in. adjustable wrench
7/16 in. combination wrench
Flat-tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Electrical Power Control Panel | FO-2 | 2 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF.

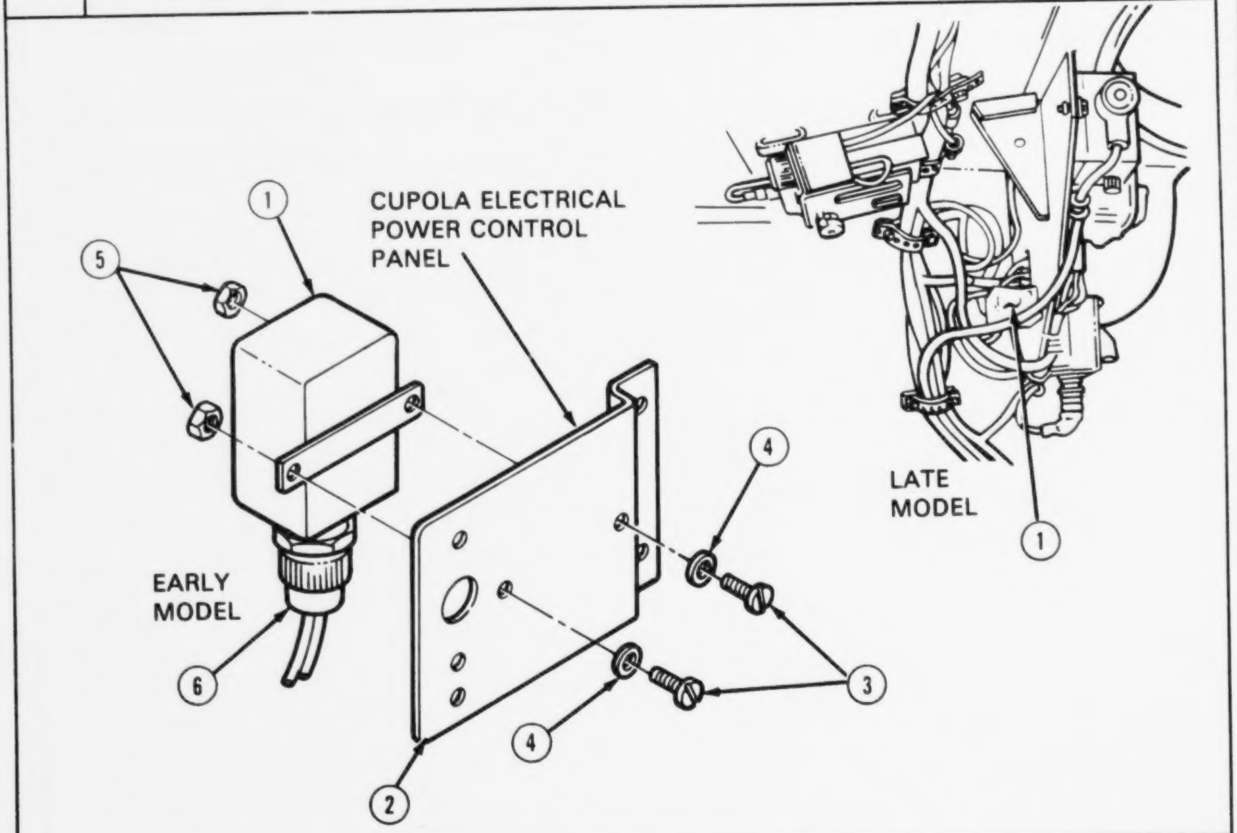
**NOTE**

**Except for location, the procedures for the cupola power switch are the same for the early or late models.**

## 36-25. CUPOLA POWER RELAY INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| STEP | PROCEDURE |
|---|---|
| 1. | Place relay (1) in mounting position on back of panel (2). |
| 2. | Put two screws (3) with two lockwashers (4) through panel (2) and relay (1) mounting bracket. |
| 3. | Put two nuts (5) on screws (3). |
| 4. | Using screwdriver and combination wrench, tighten screws (3). |
| 5. | Using adjustable wrench, connect electrical connector (6) (JPG). |
|  | **NOTE**<br>**Follow-on Maintenance Action Required:**<br>**Install cupola power switch (para 36-22).** |
|  | **END OF TASK** |


1
5
CUPOLA ELECTRICAL POWER CONTROL PANEL
4
EARLY MODEL
6
2
4
3
LATE MODEL
1

## Section 9. SAFETY SWITCH AND GUARD

### 36-26. MAINTENANCE PROCEDURES INDEX

| | Tasks | |
|---|---|---|
| **Equipment Item** | **Removal** | **Installation** |
| Safety Switch and Guard | 36-27 | 36-28 |

### 36-27. SAFETY SWITCH AND GUARD REMOVAL PROCEDURE

TOOLS: Flat-tip screwdriver

SUPPLIES: Pencil
Masking tape (item 25, App. A)

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

EQUIPMENT LOCATION INFORMATION:

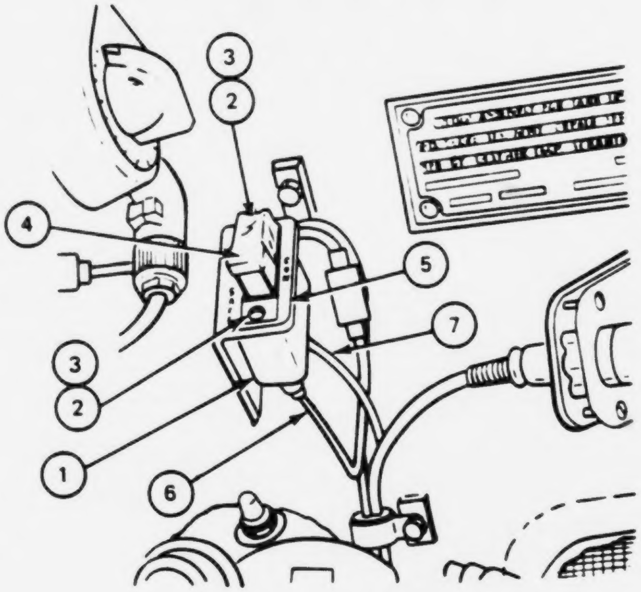
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Gun Safety Switch and Guard | FO-2 | 15 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-27. SAFETY SWITCH AND GUARD REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using pencil and masking tape, mark top of switch (1) so that switch is put in proper position during installation. |
| 2. | Using screwdriver, remove two screws (2) and two lockwashers (3). |
| 3. | Remove safety switch (1) and guard (4) from switch bracket (5). |
| 4. | Disconnect trigger switch lead connector (6) from safety switch (1) (JPG). |
| 5. | Disconnect circuit 111 power lead connector (7) from safety switch (1) (JPG). |
| | END OF TASK |



## 36-28. SAFETY SWITCH AND GUARD INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

EQUIPMENT LOCATION INFORMATION:

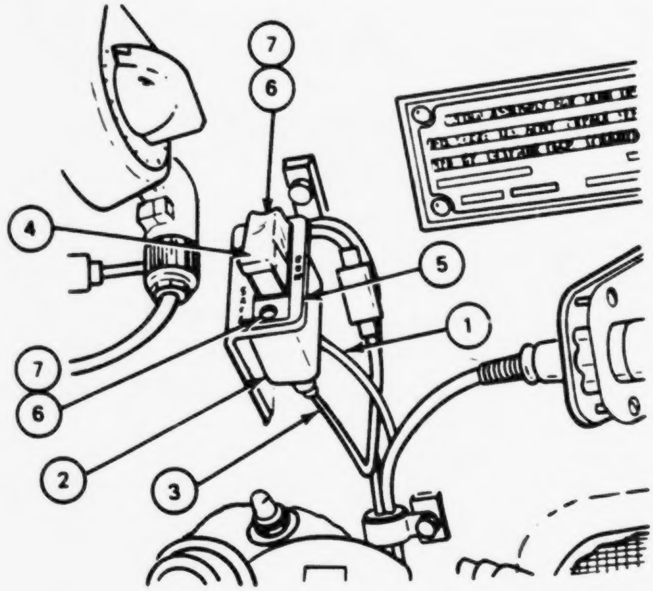
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Gun Safety Switch and Guard | FO-2 | 15 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-28. SAFETY SWITCH AND GUARD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Check that mark with masking tape made at removal (para 36-27) to show upright position of switch (2) is on top. |
| 1. | Connect circuit 111 power lead connector (1) of wiring harness (10911240) to safety switch (2) (JPG). |
| 2. | Connect trigger switch lead connector (3) of wiring harness (10884158) to safety switch (2) (JPG). |
| 3. | Place safety switch (2) and guard (4) in mounting position in switch bracket (5). |
| 4. | Using screwdriver, install two screws (6) and two lockwashers (7) through switch guard (4), bracket (5) and into safety switch (2). |
| | END OF TASK |



## Section 10. PADS

### 36-29. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| Backrest Pad | 36-30 | 36-31 |
| Pad | 36-32 | 36-33 |

### 36-30. BACKREST PAD REMOVAL PROCEDURE

TOOLS: Flat tip screwdriver
Cross tip screwdriver (Phillips)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open commander's cupola hatch

EQUIPMENT LOCATION INFORMATION:

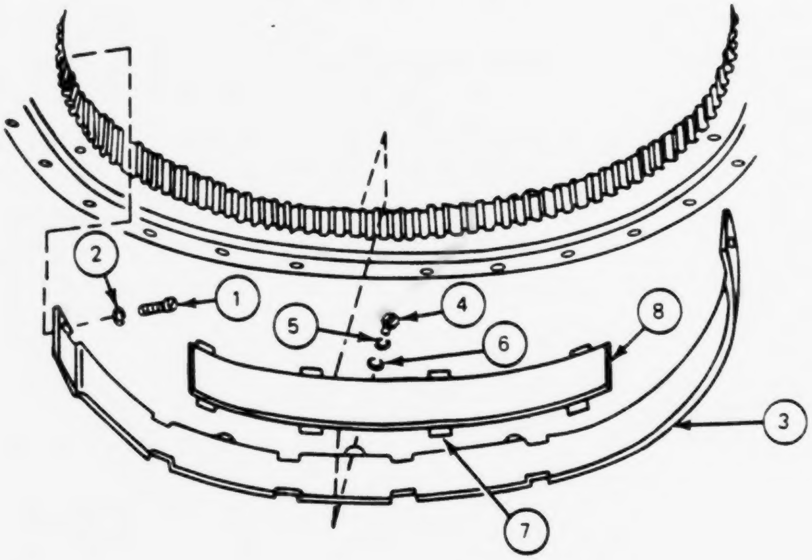
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Backrest Pad | FO-2 | 3 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Commander's cupola hatch opened (TM-10)

## 36-30. BACKREST PAD REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using flat tip screwdriver, remove two screws (1) and two lockwashers (2) from the ends of pad guard (3). |
| 2. | Using cross tip screwdriver, remove six screws (4), six lockwashers (5), and six flat washers (6) from pad guard (3). |
| 3. | Using flat tip screwdriver, bend ten metal tabs (7) away from the back side of pad guard (3). |
| 4. | Remove pad assembly (8) from pad guard (3). |
| | END OF TASK |



## 36-31. BACKREST PAD INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver
Cross tip screwdriver (Phillips)
Dull knife or scraper
2'' paint brush
4-ounce hammer

SUPPLIES: Adhesive (item 1, App. A)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open commander's cupola hatch

EQUIPMENT LOCATION INFORMATION:

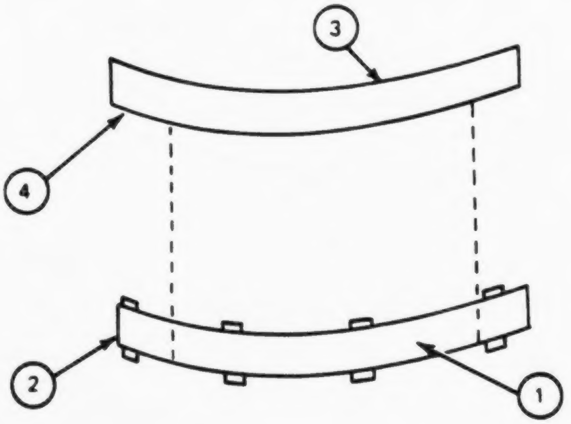
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Backrest Pad | FO-2 | 3 |

EQUIPMENT CONDITION: Commander's cupola hatch opened (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 36-31. BACKREST PAD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

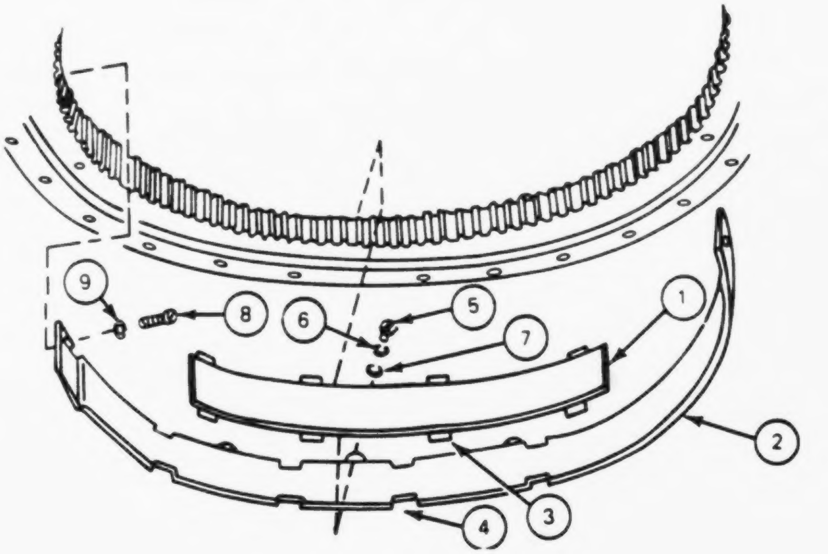
| Step | Procedure |
|---|---|
| | **NOTE**<br>If backrest pad is damaged and replacement is necessary, do the following steps. If pad is not damaged and is serviceable, go to frame 2. |
| 1. | Using a dull knife or scraper, remove pad cushion material and adhesive cement from surface of pad bracket (1). |
| | **WARNING**<br>Make sure work area is well ventilated while doing the following step. Do not allow smoking in work area. Bonding adhesives are toxic to personnel and are flammable. |
| 2. | Using a brush, apply a thin coat of adhesive to mating surface (1) of pad bracket (2) and mating surface (3) of new pad (4). |
| 3. | Let the adhesive set until it becomes tacky, then press pad (4) in place on mating surface (1) of pad bracket (2). |
| | GO TO FRAME 2 |



## 36-31. BACKREST PAD INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Place pad assembly (1) in mounting position on guard (2) so that tab (3) is in line with notch (4). |
| 2. | Using hammer, bend ten tabs (3) around ten notches (4) and to back side of guard (2). |
| 3. | Place assembled backrest pad and guard in mounting position in cupola. |
| 4. | Using cross tip screwdriver, put six screws (5) with six lockwashers (6) and six flat washers (7) through guard (2) to cupola. |
| 5. | Using flat tip screwdriver, put two screws (8) with two washers (9) through the ends of guard (2) to cupola. |
|  | END OF TASK |



## 36-32. PAD REMOVAL PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet
6" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open commander's cupola hatch

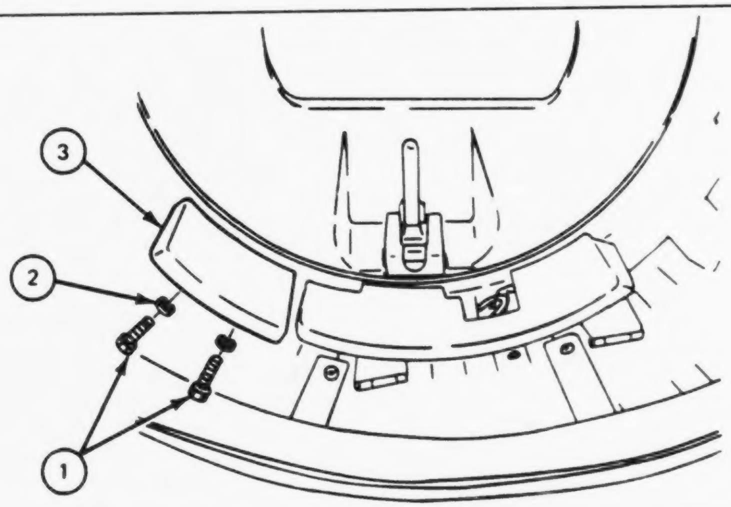
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Commander's cupola hatch opened (TM-10)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>Two screws and lockwashers to be removed in the following step are hidden from view and are located along the top and back of the pad. |
| 1. | Using socket wrench, remove two screws (1) and two lockwashers (2) from cupola wall brackets. |
| 2. | Remove pad (3). |
| | END OF TASK |



## 36-33. PAD INSTALLATION PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3/8" drive ratchet
6" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open commander's cupola hatch

EQUIPMENT LOCATION INFORMATION:

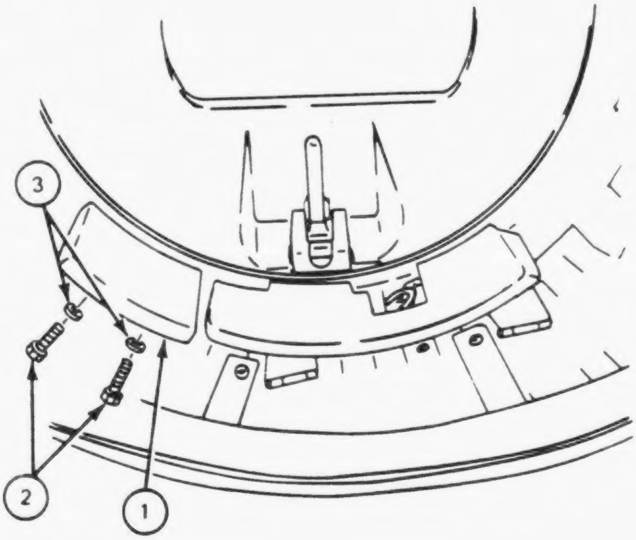
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Commander's cupola hatch opened (TM-10)
Driver's master control panel MASTER BATTERY switch set to OFF

## 36-33. PAD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

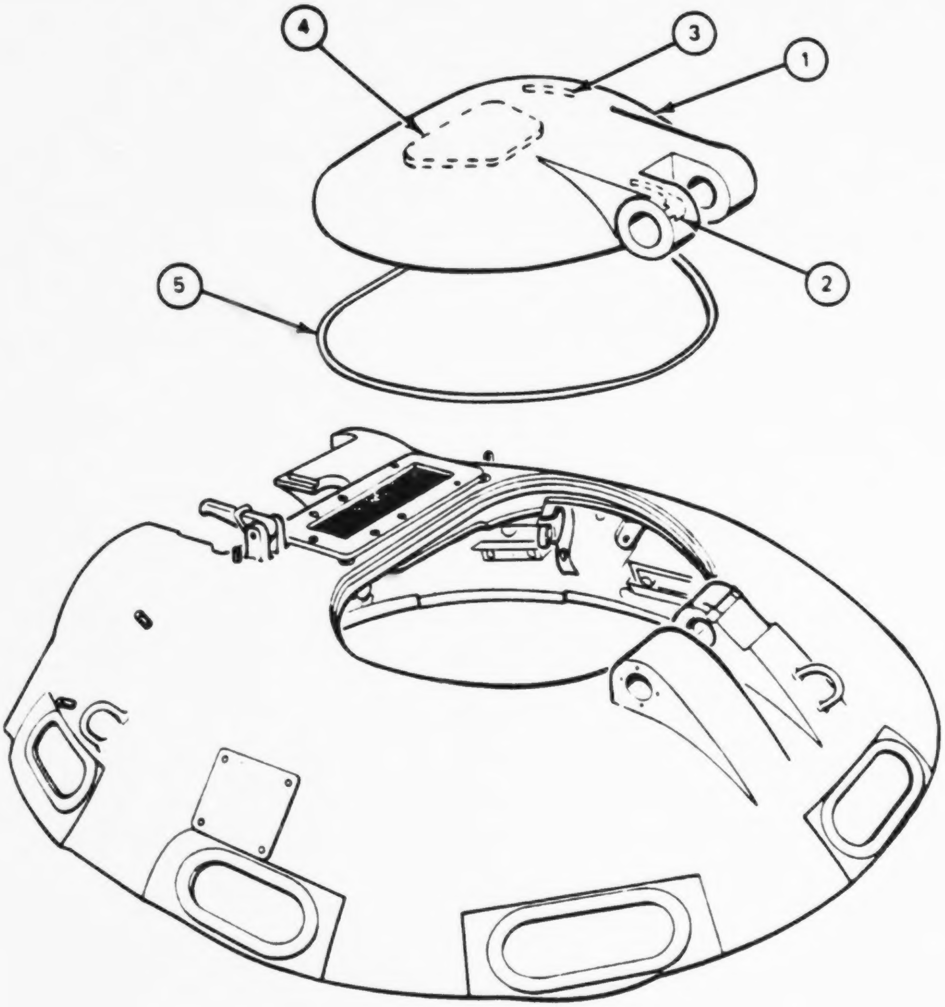
| Step | Procedure |
|---|---|
| | **NOTE**<br>Two screws and lockwashers to be installed in the following step are installed through two brackets in back of the pad. |
| 1. | Install pad (1) so that brackets in back of pad are in line with two mounting brackets on cupola wall. |
| 2. | Using socket wrench, put two screws (2) with two lockwashers (3) through pad brackets and cupola wall brackets. |
| | END OF TASK |



## Section 11. CUPOLA HATCH

## 36-34. MAINTENANCE PROCEDURES INDEX

| | | Tasks | | | | | |
|---|---|---|---|---|---|---|---|
| | Equipment Item | Test | Adjustment | Removal | Installation | Disas-sembly | Assembly |
| 1. | Cupola Hatch | 36-35 | 36-38 | 36-36 | 36-37 | . . . | . . . |
| 2. | Hold-Open Handle | . . . | . . . | 36-39 | 36-40 | 36-41 | 36-42 |
| 3. | Hold-Close Handle | 36-43 | . . . | 36-44 | 36-45 | 36-46 | 36-47 |
| 4. | Cupola Hatch Pad | . . . | . . . | 36-48 | 36-49 | . . . | . . . |
| 5. | Cupola Hatch Seal | . . . | . . . | 36-50 | 36-51 | . . . | . . . |



## 36-35. CUPOLA HATCH TEST PROCEDURE

TOOLS: Spring scale (0 to 100 pounds)
12" metal scale

SUPPLIES: Tape (item 25, App. A)
Water (as required)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open and close cupola hatch

EQUIPMENT LOCATION INFORMATION:

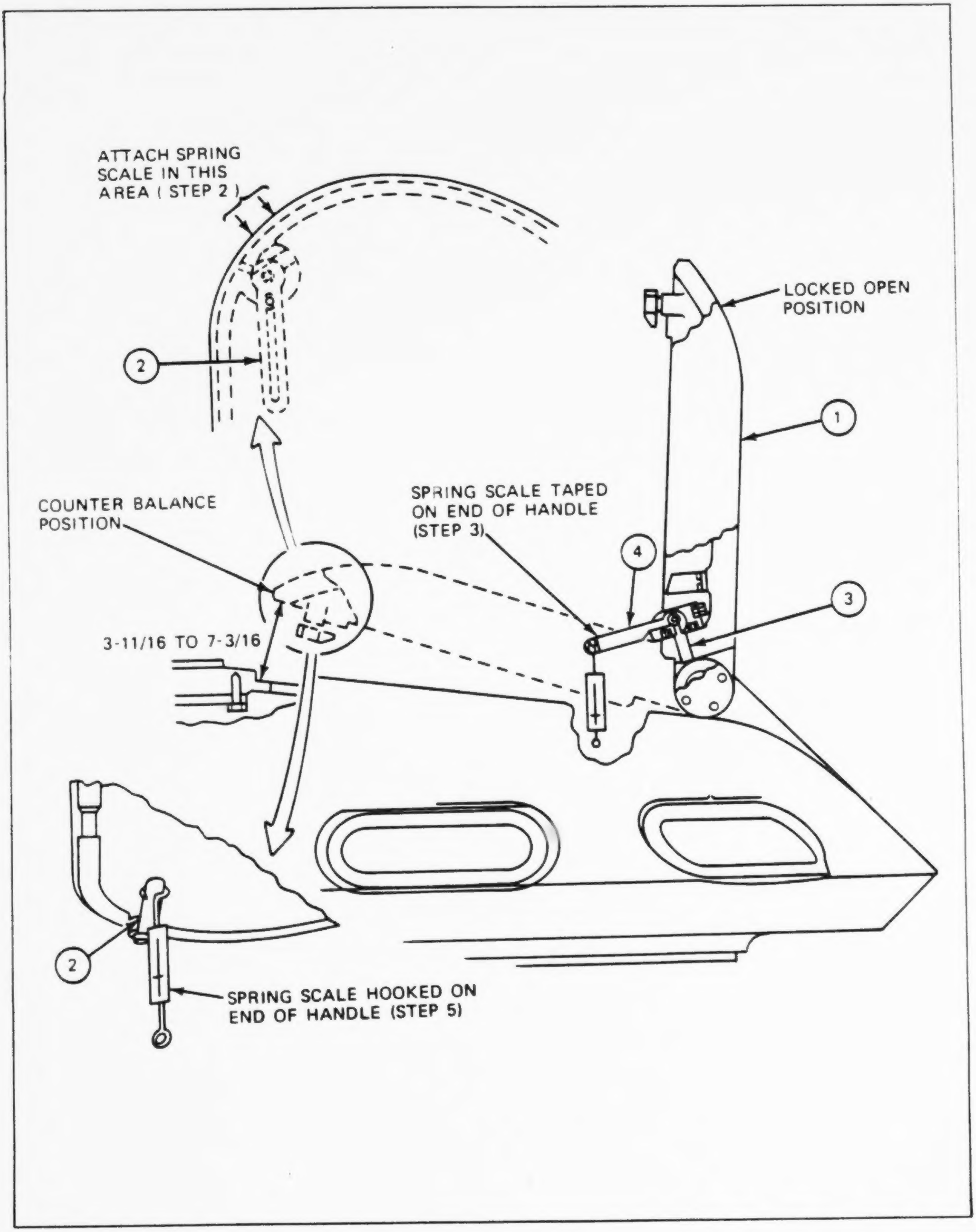
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-35. CUPOLA HATCH TEST (CONT)

**FRAME 1**

| Step | Procedure | Normal Indication | Probable Fault |
|---|---|---|---|
| 1. | Open cupola hatch (1) to counterbalance position (TM-10). | 3 11/16" to 7 3/16" from forward lower surface of cupola hatch to cupola seal lip | a. Too many spring leaves (para 36-38)<br>b. Not enough spring leaves (para 36-38)<br>c. Spring leaves too weak (para 36-38) |
| 2. | Using spring scale hooked to cupola hatch (1) near hold-close handle (2), pull open cupola hatch until dog (3) of hold-open handle (4) clicks into place. | 55 pounds maximum | a. Not enough spring leaves (para 36-38)<br>b. Spring leaves too weak (para 36-38) |
| 3. | Tape spring scale near end of hold-open handle (4). | . . . | . . . |
| 4. | Using spring scale, pull down on hold-open handle (4) and pull cupola hatch (1) to counterbalance position. | 40 pounds maximum to either unlock hold-open latch or pull cupola hatch down to counterbalance | a. Hold-open latch dog needs cleaning and greasing<br>b. Too many spring leaves (para 36-38) |
| 5. | Using spring scale on end of hold-close handle (2), pull cupola hatch (1) from counterbalance to closed position. | 35 pounds maximum | a. Too many spring leaves (para 36-38)<br>b. Not enough spring leaves (para 36-38) |
| 6. | Close and lock cupola hatch (1) (TM-10). | . . . | . . . |
| 7. | Pour water over cupola hatch (1).<br>END OF TASK | No leakage inside cupola around cupola hatch | a. Bad cupola hatch seal (para 36-50) |


ATTACH SPRING SCALE IN THIS AREA ( STEP 2 )
LOCKED OPEN POSITION
2
1
SPRING SCALE TAPED ON END OF HANDLE (STEP 3)
COUNTER BALANCE POSITION
4
3
3-11/16 TO 7-3/16
2
SPRING SCALE HOOKED ON END OF HANDLE (STEP 5)

## 36-36. CUPOLA HATCH REMOVAL PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3" extension (3/8" drive)
3/8" drive ratchet

PERSONNEL: Two

REFERENCES: TM 9-2350-222-10 for procedures to:
- Traverse cupola
- Open cupola hatch

JPG for procedures to:
- Remove sealing compound
- Remove lockwire

EQUIPMENT LOCATION INFORMATION:

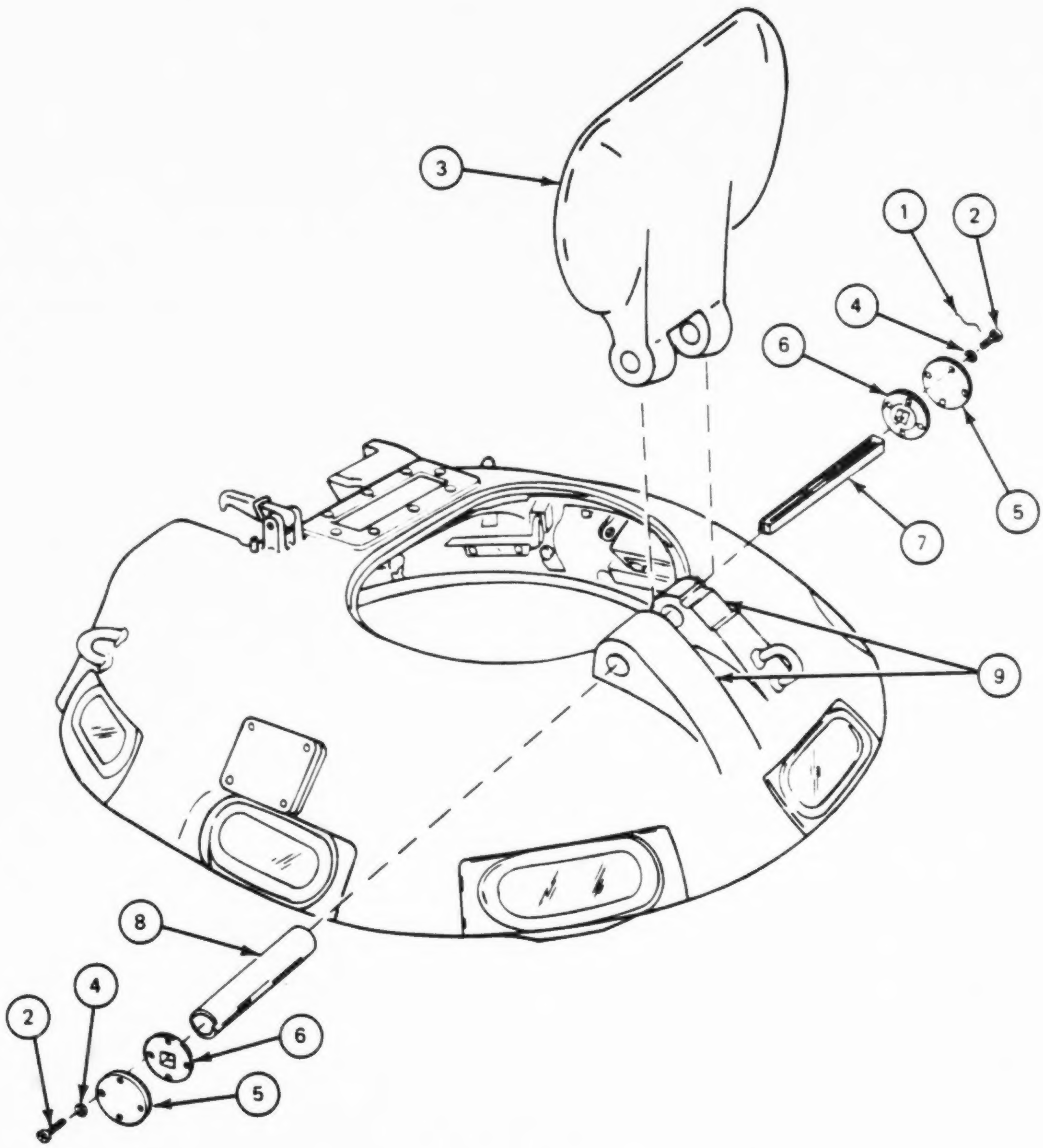
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-36. CUPOLA HATCH REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Turn cupola 45° to right of turret center line (TM-10). |
| | **NOTE** |
| | If screws (2) have no lockwire, go to step 3. |
| 2. | Soldier A: Remove lockwire (1) from screws (2) (JPG). |
| 3. | Soldier B: Open cupola hatch (3) to position slightly above counterbalance. Hold in this position during steps 4 and 5 (TM-10). |
| 4. | Soldier A: Using socket wrench, remove eight screws (2), eight lockwashers (4), two end covers (5), two caps (6), and spring (7). |
| 5. | Soldier B: Raise cupola hatch (3) to vertical position and move back and forth during step 6. |
| | **WARNING** |
| | Cupola hatch is heavy. Be careful while removing cupola hatch. If you drop it you can get hurt. |
| 6. | Soldier A: Slowly remove tube (8) that holds cupola hatch (3) to mounting brackets (9). |
| 7. | Soldiers A and B: Remove cupola hatch (3). |
| | **NOTE** |
| | Do step 8 only if screws (2) were installed with sealant. |
| 8. | Soldier A: Remove sealing compound from eight screws (2) (JPG). |
| | END OF TASK |


3
1
2
4
6
5
7
9
8
2
4
6
5

Para 36-36 Cont

## 36-37. CUPOLA HATCH INSTALLATION PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3" extension (3/8" drive)
3/8" drive ratchet
3/8" drive torque wrench (0 to 600 inch-pounds)

SUPPLIES: Grease (item 11, App. A)
Oil (item 13, App. A)
Sealant (item 19, App. A)
Shim (11591078) as required

PERSONNEL: Two

REFERENCES: TM 9-2350-222-10 for procedures to:
- Traverse cupola
- Close and open cupola hatch

JPG for procedures to:
- Apply grease
- Apply oil film
- Apply sealant
- Use torque wrench

EQUIPMENT LOCATION INFORMATION:

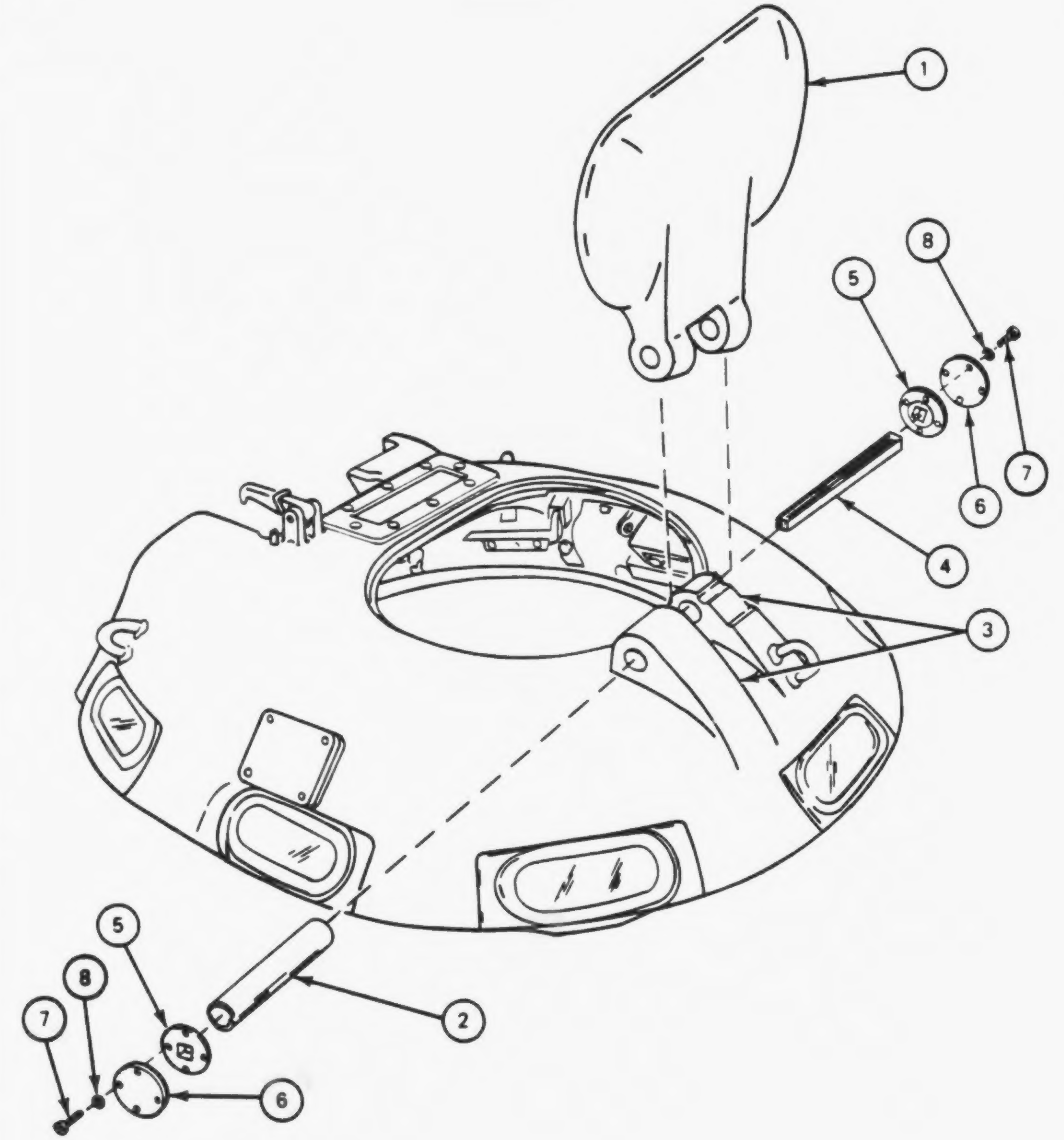
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-37. CUPOLA HATCH INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Turn cupola 45° to right of turret center line (TM-10). |
| 2. | Soldier A: Lightly coat end of hold-open latch dog with grease (JPG).<br>**WARNING**<br>Cupola hatch is heavy. Be careful while putting hatch in place. If you drop it you can get hurt. |
| 3. | Soldiers A and B: Put cupola hatch (1) in place on cupola. |
| 4. | Soldier B: Hold cupola hatch in vertical position during step 5. |
| 5. | Soldier A: Put tube (2) through cupola hatch (1) and mounting brackets (3). |
| 6. | Soldier B: Coat spring leaves (4) with light coat of oil (JPG). |
| 7. | Soldier B: Put spring leaves (4) in one end cap (5). |
| 8. | Soldier B: Slide spring leaves (4) through tube (2). |
| 9. | Soldier B: Put second end cap (5) on other end of spring leaves (4). |
| 10. | Soldier A: Put two end covers (6) over two end caps (5). |
| 11. | Soldier A: Using socket wrench, attach two end covers (6) with eight screws (7) and eight lockwashers (8). |
| 12. | Do cupola hatch test (para 36-35). |
| 13. | Do cupola hatch adjustment (para 36-38, frame 1) as necessary. |
|  | GO TO FRAME 2 |

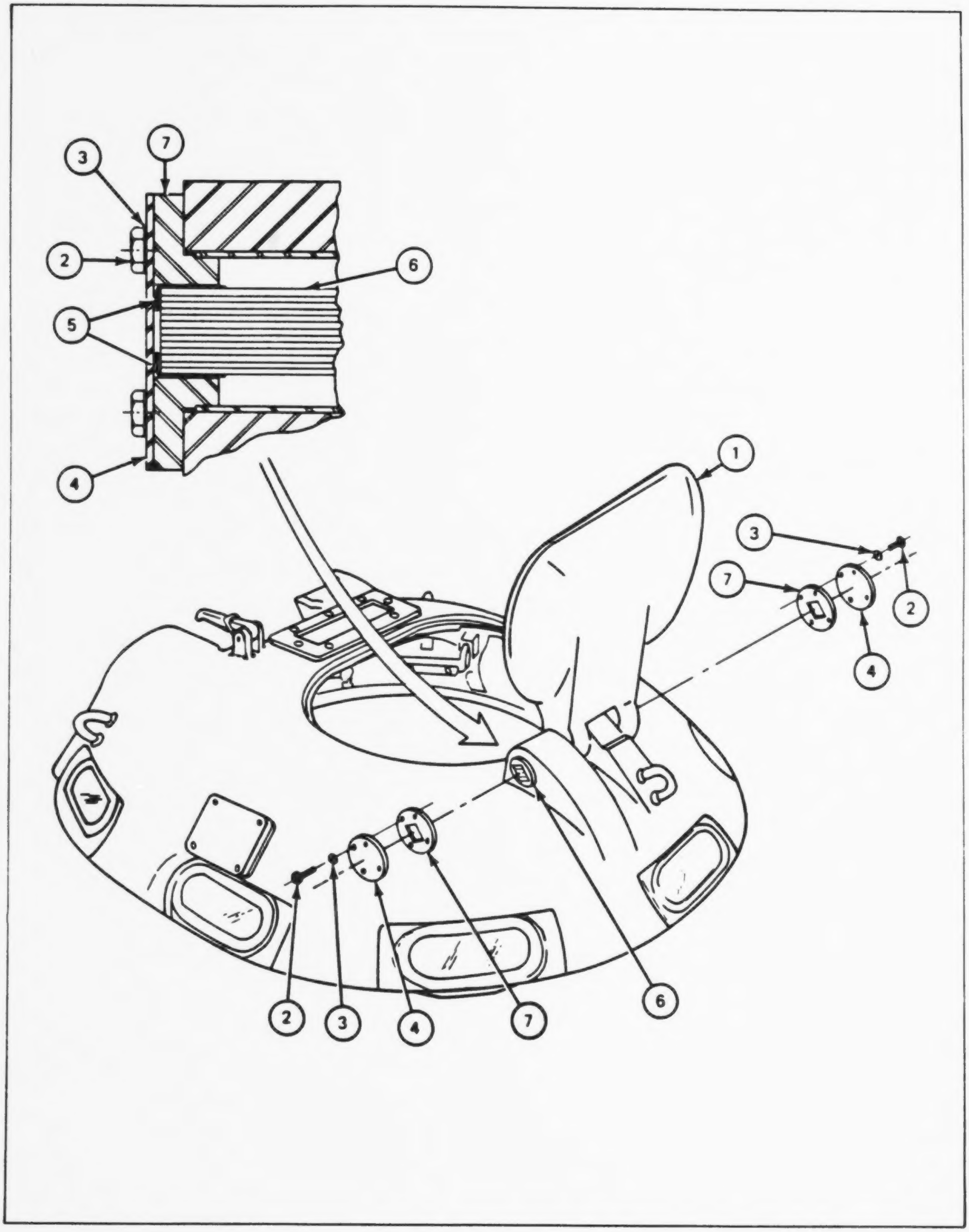


## 36-37. CUPOLA HATCH INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Soldier A: Slightly raise cupola hatch (1) from counterbalance position and hold in this position during steps 2 through 8 (TM-10).<br>**NOTE**<br>Soldier B: Do steps 2 through 8. |
| 2. | Using socket wrench, remove eight screws (2), eight lockwashers (3), and two end covers (4). |
| 3. | Put shims (5) on ends of spring (6) as necessary (a maximum of two on each end) to tighten springs in end caps (7). |
| 4. | Put on two end covers (4). |
| 5. | Put eight lockwashers (3) on eight screws (2). |
| 6. | Put sealant on threads of eight screws (2) (JPG). |
| 7. | Using socket wrench, put in eight screws (2). |
| 8. | Using torque wrench, torque eight screws (2) between 132 and 168 inch-pounds (JPG).<br>END OF TASK |

**Para 36-37 Cont**



## 36-38. CUPOLA HATCH ADJUSTMENT PROCEDURE

TOOLS: 7/16" socket (3/8" drive)
3" extension (3/8" drive)
3/8" drive ratchet
3/8" drive torque wrench (0 to 600 inch-pounds)
12" metal scale

SUPPLIES: Spring leaf (10887706) (as required)

PERSONNEL: Two

REFERENCES: JPG for procedures to:
Apply sealant
Use torque wrench
TM 9-2350-222-10 for procedure to open and close cupola hatch

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

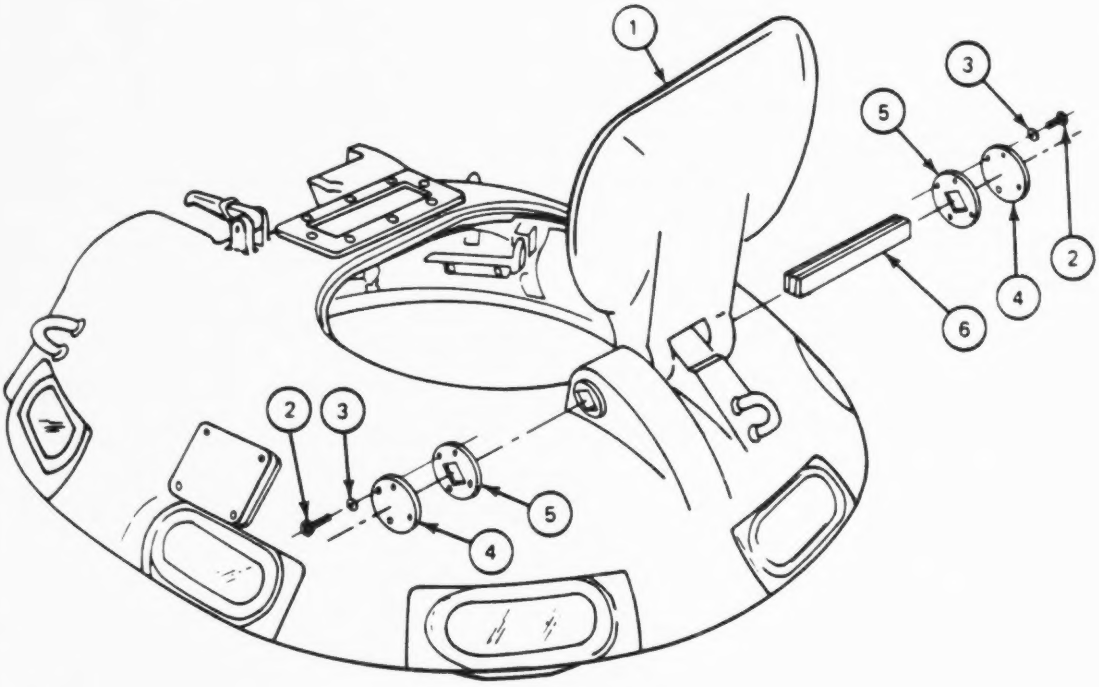
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURES: Test cupola hatch (para 36-35)

## 36-38. CUPOLA HATCH ADJUSTMENT PROCEDURE (CONT)

**FRAME 1**

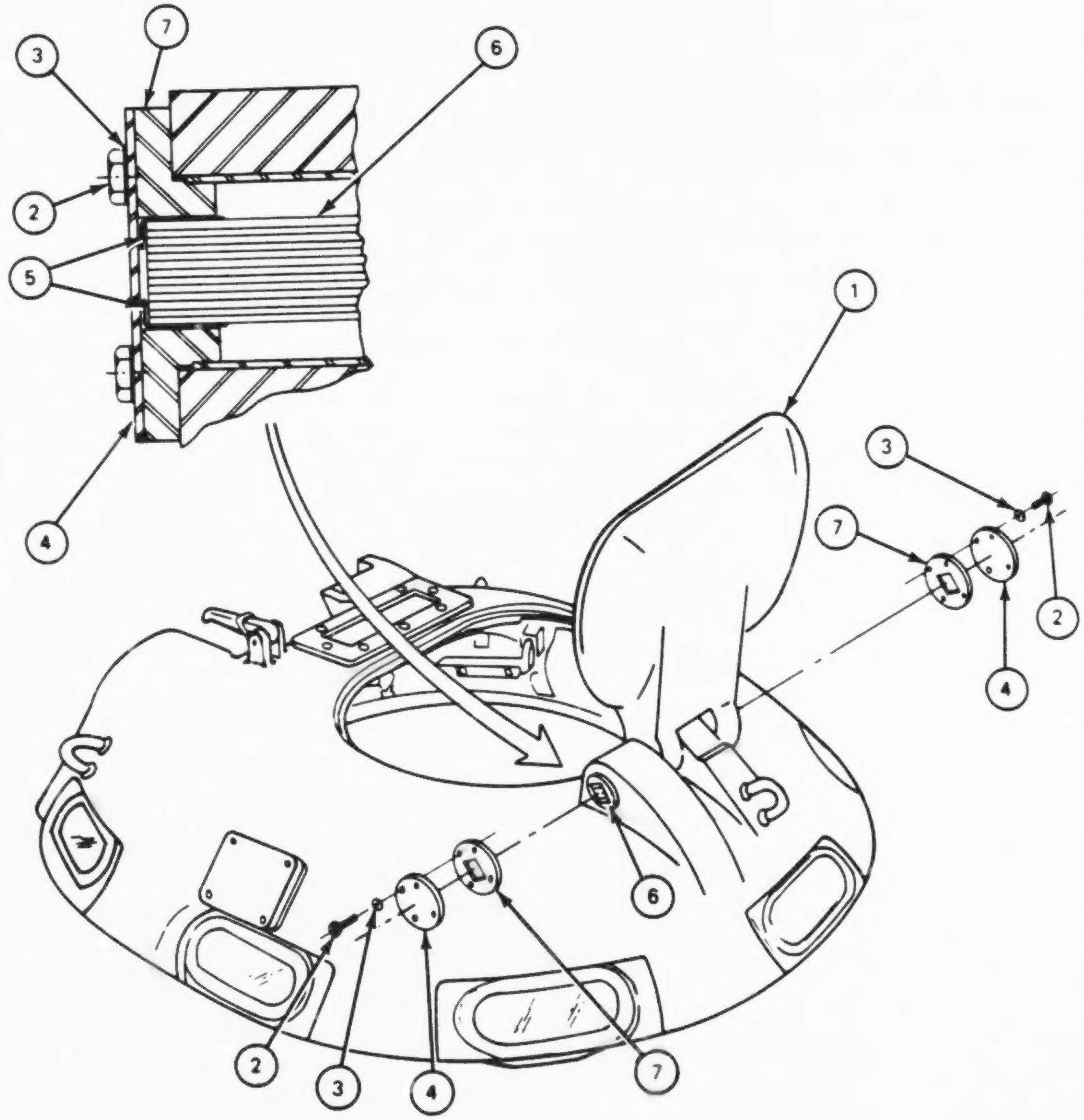
| Step | Procedure |
|---|---|
| 1. | Soldier A: Slightly raise cupola hatch (1) from counterbalance position and hold in this position during steps 2 through 5 (TM-10). |
| | **NOTE**<br>Soldier B: Do steps 2 through 5. |
| 2. | Using socket wrench, remove eight screws (2), eight lockwashers (3), two end covers (4), and two end caps (5). |
| | **NOTE**<br>If cupola hatch was counterbalanced too far toward open position, spring leaves must be removed. If cupola hatch was counterbalanced too far toward closed position, spring leaves must be added.<br>There are a maximum of 13 spring leaves. If more spring leaves are required, replace old spring leaves with a new set. |
| 3. | Remove or add spring leaves (6) as necessary. |
| 4. | Put on two end caps (5) and two end covers (4). |
| 5. | Using socket wrench, attach two end covers (4) with eight screws (2) and eight lockwashers (3). |
| 6. | Do cupola hatch test (para 36-35). |
| 7. | Repeat steps 1 through 6 until cupola hatch is in adjustment. |
| | GO TO FRAME 2 |



## 36-38. CUPOLA HATCH ADJUSTMENT PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| 1. | Soldier A: Slightly raise cupola hatch (1) from counterbalance position and hold in this position during steps 2 through 8.<br>**NOTE**<br>Soldier B: Do steps 2 through 8. |
| 2. | Using socket wrench, remove eight screws (2), eight lockwashers (3), and two end covers (4). |
| 3. | Put shims (5) on ends of spring (6) as necessary (a maximum of two on each end) to tighten springs in end caps (7). |
| 4. | Put on two end covers (4). |
| 5. | Put eight lockwashers (3) on eight screws (2). |
| 6. | Put sealant on threads of eight screws (2) (JPG). |
| 7. | Using socket wrench, put in eight screws (2). |
| 8. | Using torque wrench, torque eight screws (1) between 132 and 168 inch-pounds (JPG).<br>END OF TASK |



## 36-39. HOLD-OPEN HANDLE REMOVAL PROCEDURE

TOOLS: Flat tip screwdriver
1/2" socket (3/8" drive)
3" extension (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open cupola hatch

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

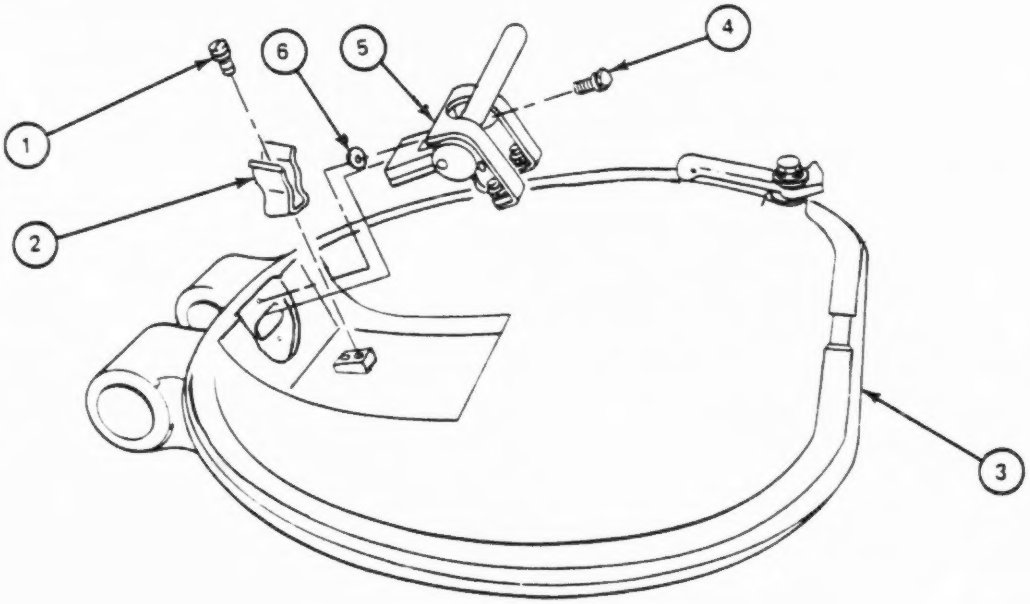
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-39. HOLD-OPEN HANDLE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open cupola hatch (TM-10). |
| 2. | Using screwdriver, remove two screws with assembled washers (1) that attach clip (2) to cupola hatch (3). Remove clip (2). |
| 3. | Using socket wrench, remove two screws with assembled washers (4) that attach hold-open handle (5) to cupola hatch (3). |
| 4. | Remove hold-open handle (5) and any shims (6) between hold-open handle (5) and cupola hatch (3).<br>END OF TASK |



## 36-40. HOLD-OPEN HANDLE INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver
1/2" socket (3/8" drive)
3" extension (3/8" drive)
3/8" drive ratchet
Feeler gauge

SUPPLIES: Grease (item 11, App. A)
Oil (item 14, App. A)
Flat washer (shim) (7027961) (as required)

PERSONNEL: One

REFERENCES: JPG for procedures to:
Apply oil and grease
Use feeler gauge
TM 9-2350-222-10 for procedure to open cupola hatch

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

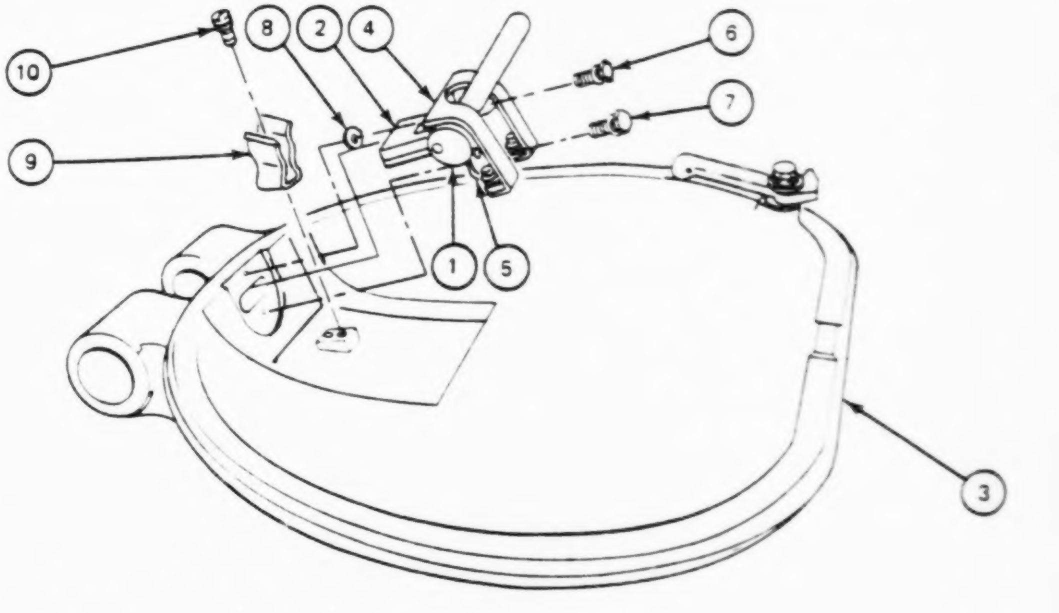
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-40. HOLD-OPEN HANDLE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

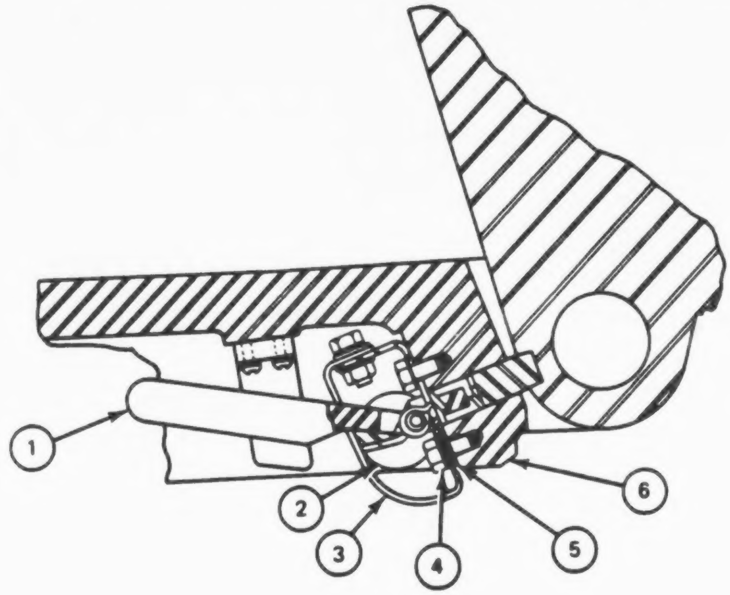
| Step | Procedure |
|---|---|
| 1. | Open cupola hatch (TM-10). |
| 2. | Put thin coat of oil on rolling surfaces of cam (1) (JPG) |
| 3. | Put thin coat of grease on sliding surfaces of dog (2) (JPG) |
| 4. | Put dog (2) of hold-open handle in slot of cupola hatch (3) |
| | **NOTE** |
| | Shims (8) go between cover (4) and support (5) on screw (6) only. |
| 5. | Using socket wrench, attach cover (4) and support (5) to cupola hatch (3) using two screws with assembled washers (6) and (7), and shims (8). |
| 6. | Using screwdriver, attach clip (9) to cupola hatch (3) using two screws with assembled washers (10). |
| | GO TO FRAME 2 |



## 36-40. HOLD-OPEN HANDLE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| | **NOTE**<br>During handle operation, there should be minimum clearance between cam and cover. There should be no binding or rubbing by cover throughout full travel of cam. Omit steps 2 thru 6 if correct clearance is obtained in step 1. |
| 1. | Using feeler gauge, move handle (1) and check for clearance of 0.015" maximum between cam (2) and cover (3) throughout full travel of cam (JPG). |
| | **NOTE**<br>If cam rubs cover, add shims. If cam is too far from cover, remove shims. |
| 2. | Using socket wrench, remove screw (4). |
| 3. | Remove or add shims (5) as required to screw (4) between cover (3) and cupola hatch (6). |
| 4. | Put in screw (4). |
| 5. | Using socket wrench, tighten screw (4). |
| 6. | Repeat steps 1 through 6 until cover (3) is adjusted. |
| | END OF TASK |



## 36-41. HOLD-OPEN HANDLE DISASSEMBLY PROCEDURE

TOOLS: 1/2" combination wrench (2)
5/64" punch
1/8" drive pin punch
Ball peen hammer

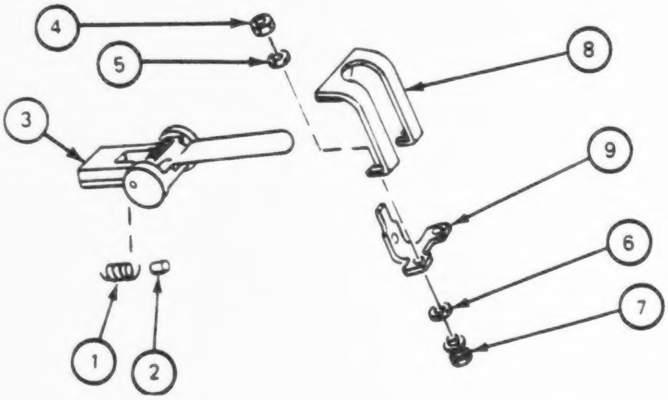
PERSONNEL: One

PRELIMINARY PROCEDURES: Remove hold-open handle (para 36-39)

## 36-41. HOLD-OPEN HANDLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 1**

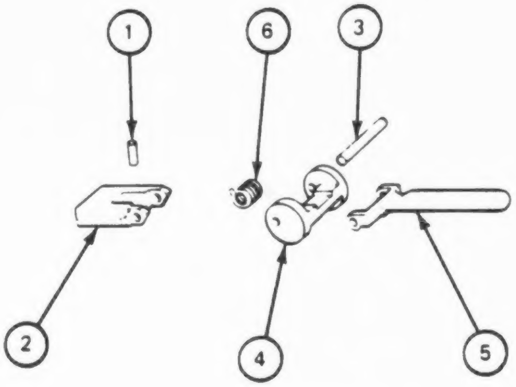
| Step | Procedure |
|---|---|
| 1. | Remove spring (1) and pin (2) from handle (3). |
| 2. | Using two wrenches, remove two nuts (4), two lockwashers (5), two flat washers (6), and two screws with attached washers (7) that attach cover (8) to support (9). |
| 3. | Remove cover (8) from support (9). |
| 4. | Remove support (9) from handle (3).<br>GO TO FRAME 2 |



## 36-41. HOLD-OPEN HANDLE DISASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using 5/64" punch and hammer, remove spring pin (1) from dog (2) and pin (3). |
| 2. | Using 1/8" punch and hammer, drive pin (3) from cam (4). |
| 3. | Remove handle (5), spring (6), and dog (2). |
|  | END OF TASK |



## 36-42. HOLD-OPEN HANDLE ASSEMBLY PROCEDURE

TOOLS: 1/2" box end wrench (2)
5/64" drive pin punch
1/8" drive pin punch
Ball peen hammer

SUPPLIES: Oil (item 14, App. A)
Spring pin (MS 16562-26)

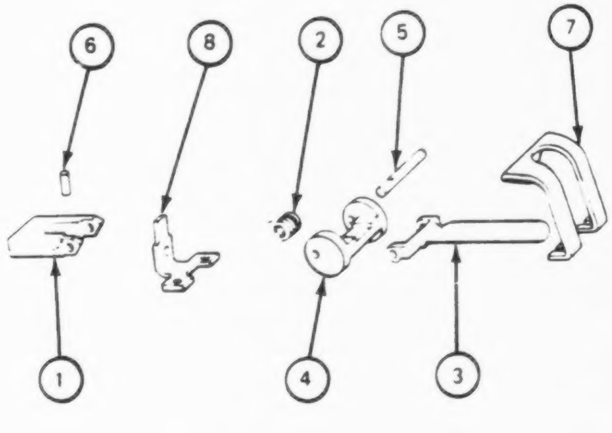
PERSONNEL: One

REFERENCES: JPG for procedure to coat parts with oil

## 36-42. HOLD-OPEN HANDLE ASSEMBLY PROCEDURE (CONT)

**FRAME 1**

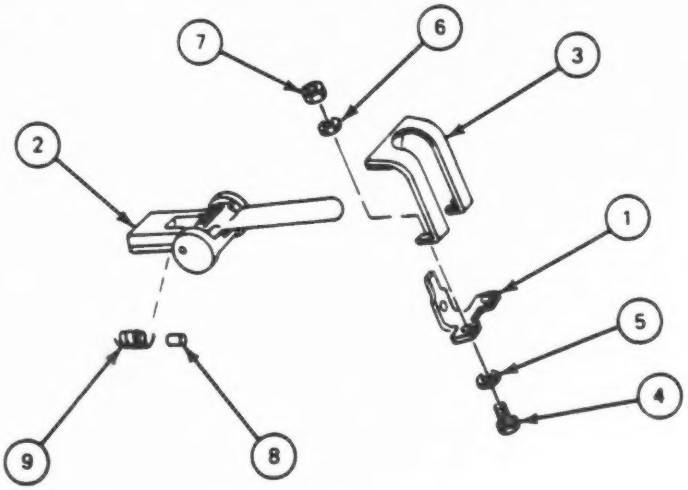
| Step | Procedure |
|---|---|
| 1. | Put dog (1), spring (2), and handle (3) into cam (4). |
| 2. | Put thin coating of oil on pin (5) (JPG). |
| 3. | Using 1/8" punch and hammer, put pin (5) through cam (4), handle (3), spring (2), and dog (1). |
| 4. | Using 5/64" punch, put new spring pin (6) through dog (1) and pin (5). |
| 5. | Put handle (3) through cover (7). |
| 6. | Slide support (8) between dog (1) and cam (4). |
|  | GO TO FRAME 2 |



## 36-42. HOLD-OPEN HANDLE ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Put support (1) through handle (2). |
| 2. | Put cover (3) on support (1). |
| 3. | Using two wrenches, attach cover (3) to support (1) using two screws with attached washers (4), two flat washers (5), two lockwashers (6), and two nuts (7). |
| 4. | Put pin (8) and spring (9) inside handle (2). |
|  | END OF TASK |



## 36-43. HOLD-CLOSE HANDLE TEST

TOOLS: Spring scale (0 to 100 pounds) (two)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open and close cupola hatch

EQUIPMENT LOCATION INFORMATION:

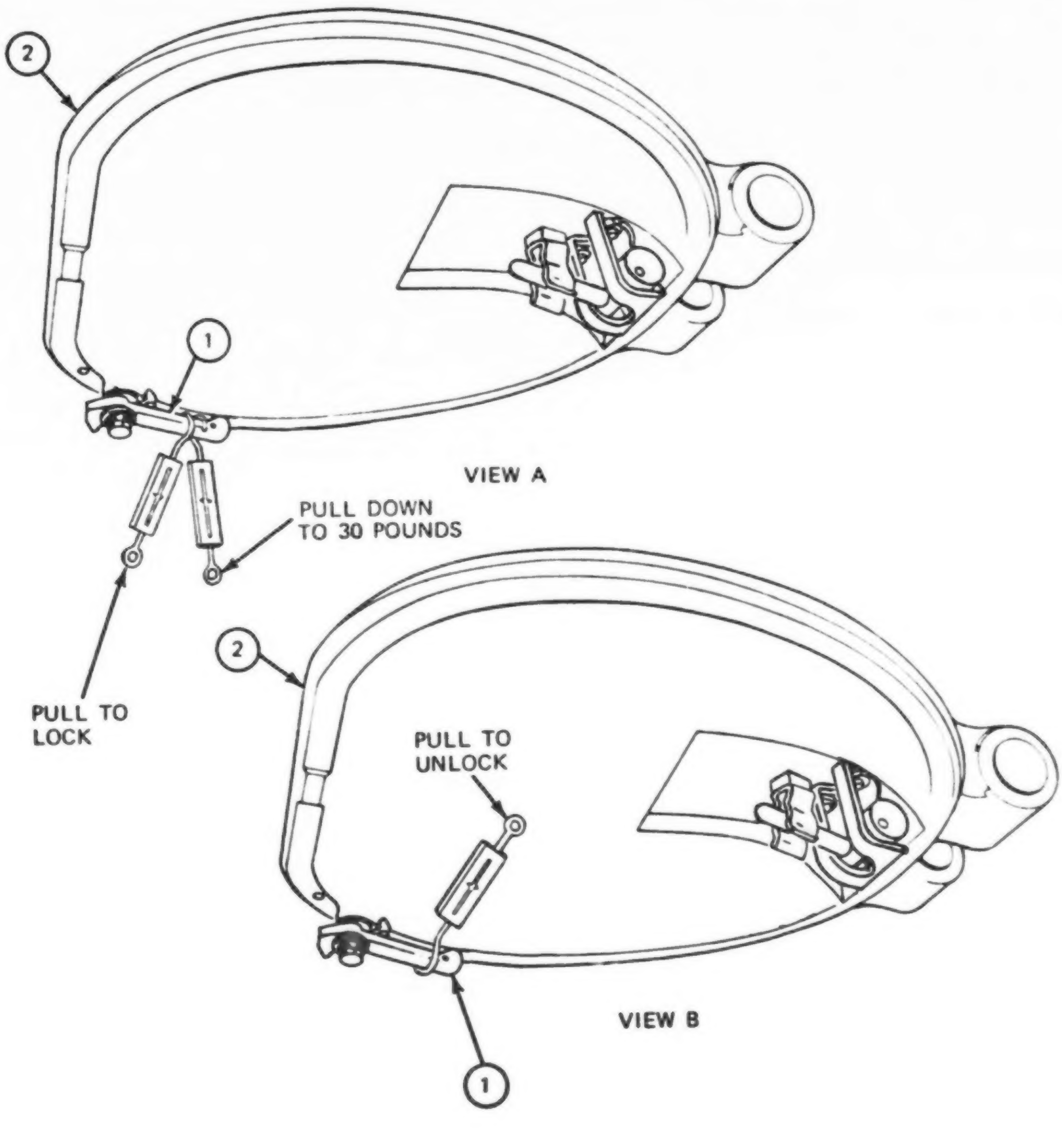
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-43. HOLD-CLOSE HANDLE TEST (CONT)

**FRAME 1**

| Step | Procedure | Normal Indication | Probable Fault |
|---|---|---|---|
| 1. | Open cupola hatch to balanced position (TM-10). | | |
| 2. | Hook two spring scales on end of hold-close handle (1) as shown in view A. | . . . | . . . |
| 3. | Using one spring scale, pull straight down with force of 30 pounds. | . . . | . . . |
| 4. | Using second spring scale, pull straight sideways to lock hold-close handle (1). | 20 pounds maximum | a. Too many spring leaves (para 36-38)<br>b. Hold-close handle needs more shims (para 36-44 and 36-45) |
| 5. | Using spring scale, pull straight sideways to unlock hold-close handle (1) as shown in view B. | 20 pounds maximum | a. Too many spring leaves (para 36-38)<br>b. Hold-close handle needs more shims (para 36-44 and 36-45) |
| 6. | Close and lock cupola hatch (2) (TM-10). | . . . | . . . |
| 7. | Grab hold-close handle with both hands. Try to shake cupola hatch up and down. | Hold-close handle tight; no movement of cupola hatch | a. Hold-close handle needs shims removed (para 36-44 and 36-45)<br>b. Cupola hatch seal bad |
| | **END OF TASK** | | |


2
1
VIEW A
PULL DOWN TO 30 POUNDS
PULL TO LOCK
2
PULL TO UNLOCK
VIEW B
1

## 36-44. HOLD-CLOSE HANDLE REMOVAL PROCEDURE

TOOLS: 3/4" box end wrench

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open cupola hatch

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

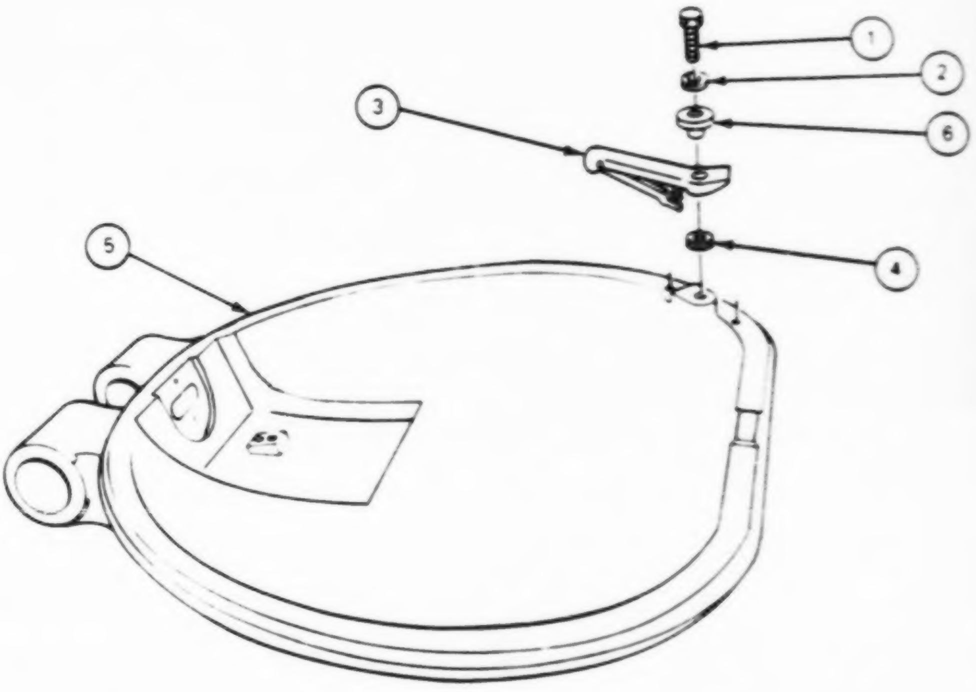
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-44. HOLD-CLOSE HANDLE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open cupola hatch (TM-10).<br>**NOTE**<br>Take care in removing hold-close handle that spring between handle and latch does not fall out. |
| 2. | Using wrench, remove self-locking screw (1), flat washer (2), hold-close handle (3), and shims (4) from cupola hatch (5). |
| 3. | Remove bushing (6) from handle (3).<br>END OF TASK |



## 36-45. HOLD-CLOSE HANDLE INSTALLATION PROCEDURE

TOOLS: 3/4" box end wrench
3/4" socket (1/2" drive)
1/2" drive torque wrench (0 to 250 foot-pounds)

SUPPLIES: Self-locking screw (10911137)
Flat washer (shim) (10905489) (as required)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open cupola hatch
JPG for procedures to:
Put light coating of oil on parts
Use torque wrench

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

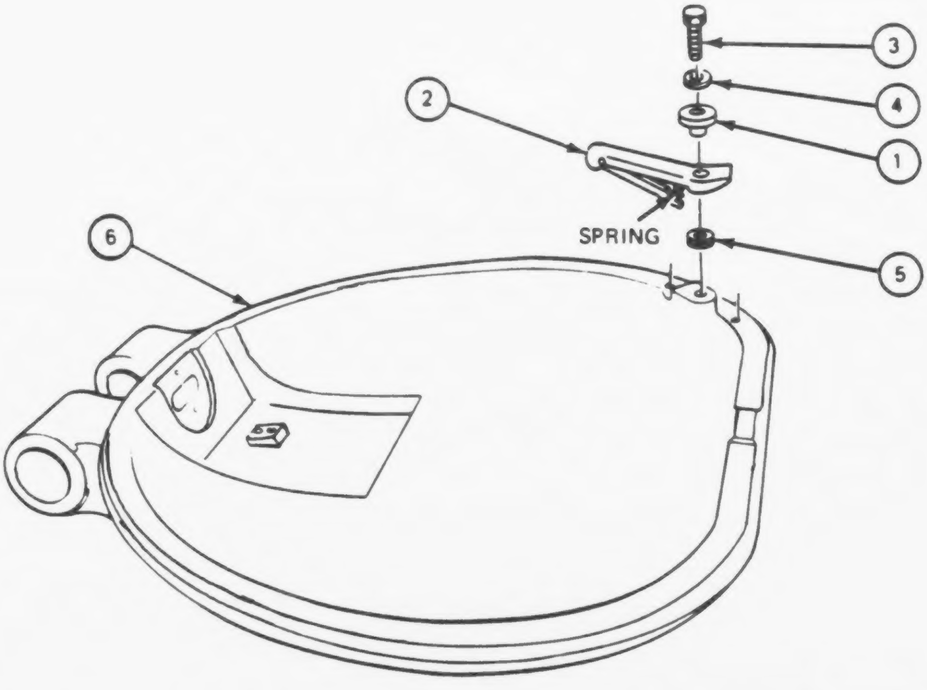
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-45. HOLD-CLOSE HANDLE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open cupola hatch (TM-10). |
| 2. | Put light coating of oil on outside of bushing (1) and bushing hole of hold-close handle (2) (JPG). |
| 3. | Put bushing (1) in hold-close handle (2). |
| 4. | Put new self-locking screw (3) through flat washer (4), bushing (1), shims (5), and cupola hatch (6). |
| 5. | Using torque wrench, torque screw (3) from 9 to 11 foot-pounds (JPG). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Test hold-close handle (para 36-43). |
|  | END OF TASK |



## 36-46. HOLD-CLOSE HANDLE DISASSEMBLY PROCEDURE

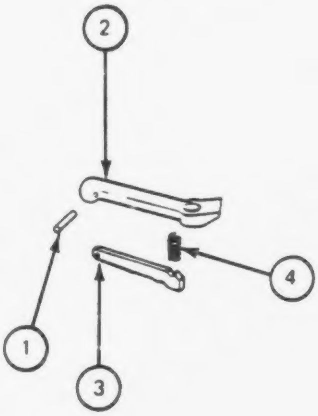
TOOLS: 1/8" drive pin punch
Ball peen hammer

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove hold-close handle (para 36-44)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using punch and hammer, drive pin (1) out of handle (2). |
| 2. | Remove locking plate (3) and spring (4). |
|  | END OF TASK |



## 36-47. HOLD-CLOSE HANDLE ASSEMBLY PROCEDURE

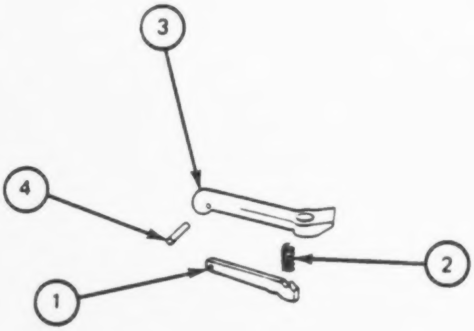
TOOLS: 3/4'' box end wrench
1/8'' drive pin punch
Ball peen hammer

SUPPLIES: Spring pin (MS 39086-96)

PERSONNEL: One

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put locking plate (1) and spring (2) in handle (3). Line up holes in locking plate with holes in handle. |
| 2. | Using punch and hammer, put new spring pin (4) through handle (3) and locking plate (1). |
| | END OF TASK |



## 36-48. CUPOLA HATCH PAD REMOVAL PROCEDURE

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to lock cupola hatch in open position
JPG for procedure to remove adhesive

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

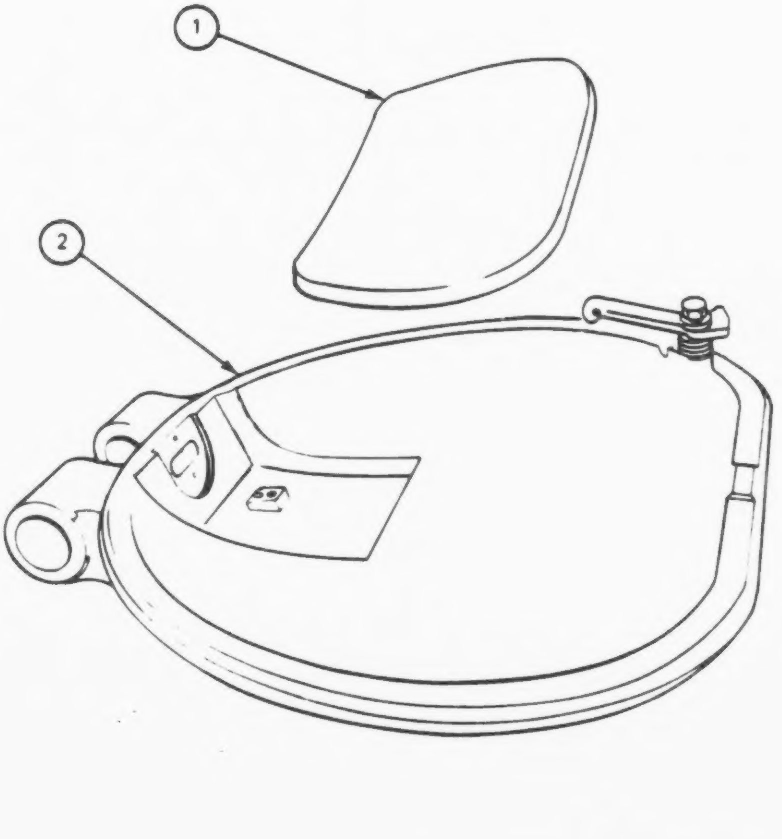
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-48. CUPOLA HATCH PAD REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lock cupola hatch in open position (TM-10). |
| 2. | Pull cupola hatch pad (1) from cupola hatch (2). |
| 3. | Remove old adhesive from cupola hatch (2) (JPG). |
| | END OF TASK |



## 36-49. CUPOLA HATCH PAD INSTALLATION PROCEDURE

SUPPLIES: Adhesive (item 4, App. A)
Pad (10873143)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to lock cupola hatch in open position
JPG for procedure to apply adhesive

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

**WARNING**

Allow no smoking in work area. Bonding adhesives are flammable.

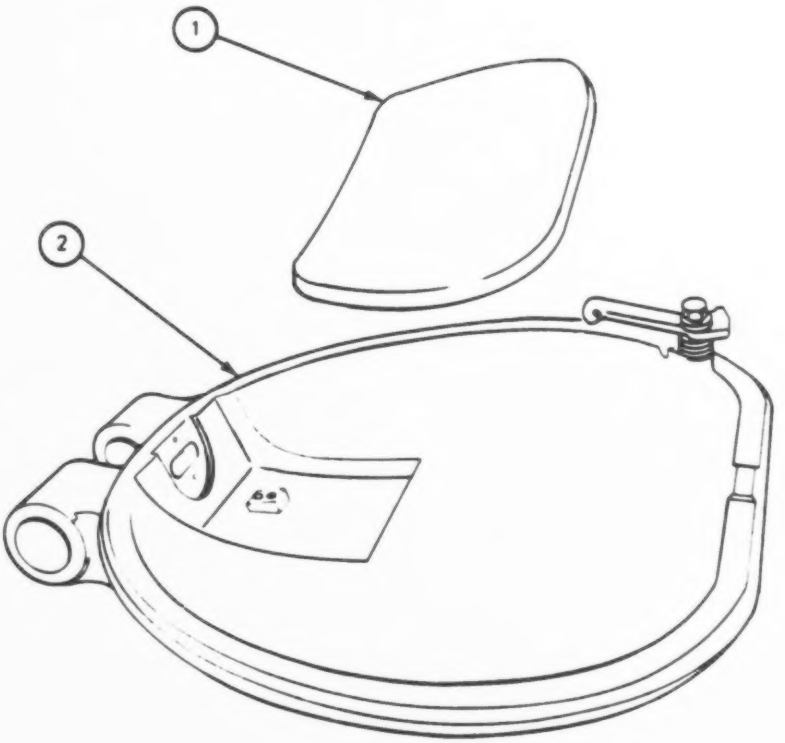
**NOTE**

This procedure can also be done with cupola hatch removed.

## 36-49. CUPOLA HATCH PAD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lock cupola hatch in open position (TM-10). |
| 2. | Apply adhesive to back side of new cupola hatch pad (1) and on cupola hatch (2) (JPG). |
| 3. | Using both hands, put cupola hatch pad (1) on cupola hatch (2) and press pad firmly in place. |
|  | END OF TASK |



## 36-50. CUPOLA HATCH SEAL REMOVAL PROCEDURE

TOOLS: Putty knife

PERSONNEL: One

REFERENCES: JPG for procedure to remove adhesive
TM 9-2350-222-10 for procedure to lock cupola hatch in open position

EQUIPMENT LOCATION INFORMATION:

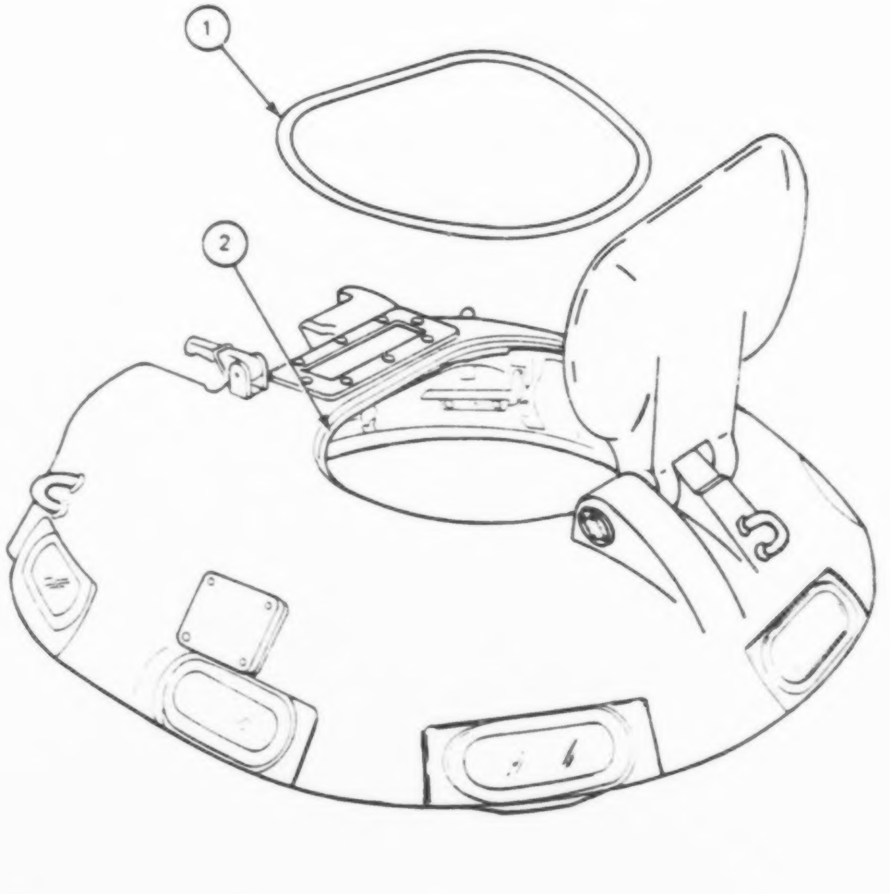
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to **OFF**

## 36-50. CUPOLA HATCH SEAL REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lock cupola hatch in open position (TM-10). |
| 2. | Using putty knife, remove old seal (1) and adhesive from cupola hatch opening (2) (JPG). |
| | END OF TASK |



## 36-51. CUPOLA HATCH SEAL INSTALLATION PROCEDURE

SUPPLIES: Adhesive (item 3, App. A)
Seal (10873159)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to lock cupola hatch in open position
JPG for procedure to apply adhesive

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

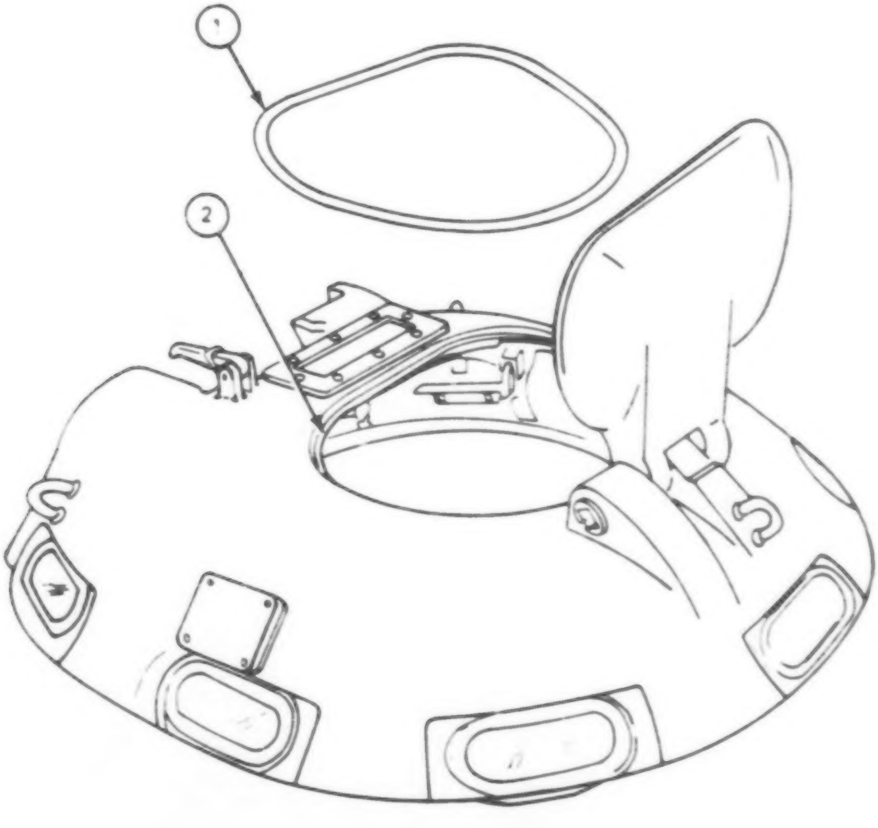
**WARNING**

Allow no smoking in work area. Bonding adhesives are flammable.

## 36-51. CUPOLA HATCH SEAL INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Lock cupola hatch in open position (TM-10). |
| 2. | Apply adhesive to new seal (1) and around rim of cupola hatch opening (2) (JPG). |
| 3. | Press new seal (1) into place. |
|  | END OF TASK |



## Section 12. TOP ACCESS DOOR

### 36-52. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| 1. Top Access Door | 36-53 | 36-54 |
| 2. Access Door Latch | 36-55 | 36-56 |

### 36-53. TOP ACCESS DOOR REMOVAL PROCEDURE

TOOLS: 5/16" hex head socket (3/8" drive)
3/8" drive ratchet

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

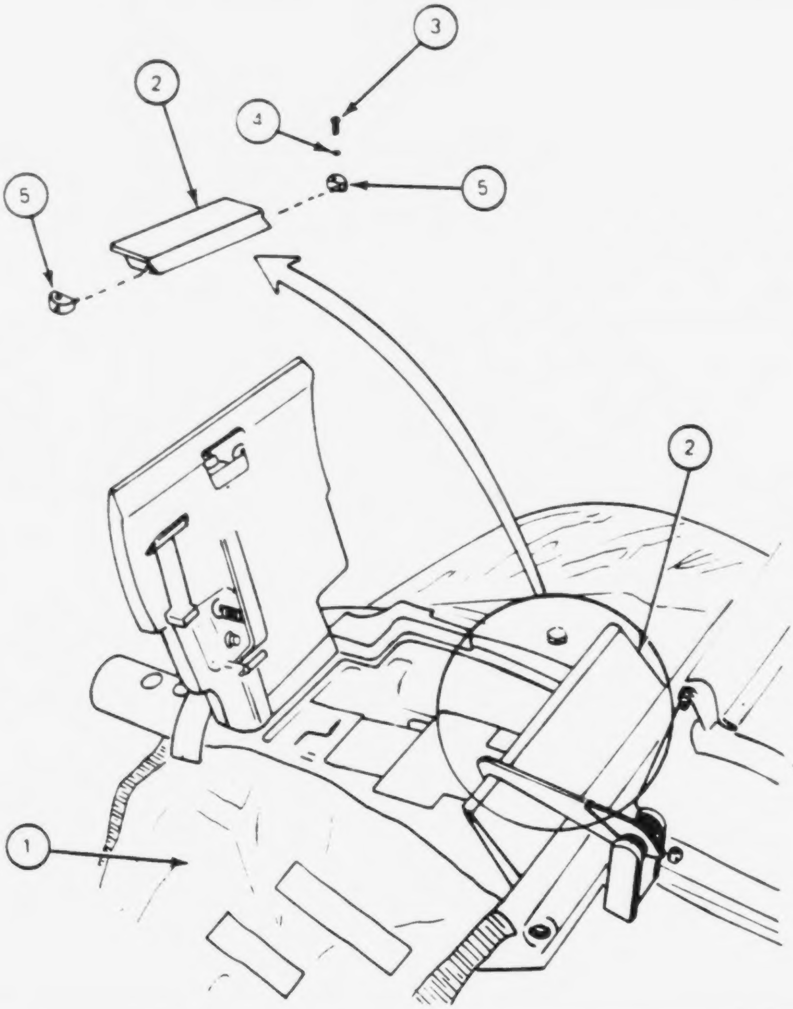
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-53. TOP ACCESS DOOR REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Pull cupola cover access flap (1) open until top access door (2) is completely exposed. |
| 2. | Using socket wrench, remove two screws (3) and two lockwashers (4) from top access door (2). |
| 3. | Remove top access door (2). |
| 4. | Remove two hinges (5) from top access door (2). |
| | END OF TASK |



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## 36-54. TOP ACCESS DOOR INSTALLATION PROCEDURE

TOOLS: 5/16″ hex head socket (3/8″ drive)
3/8″ drive ratchet

PERSONNEL: One

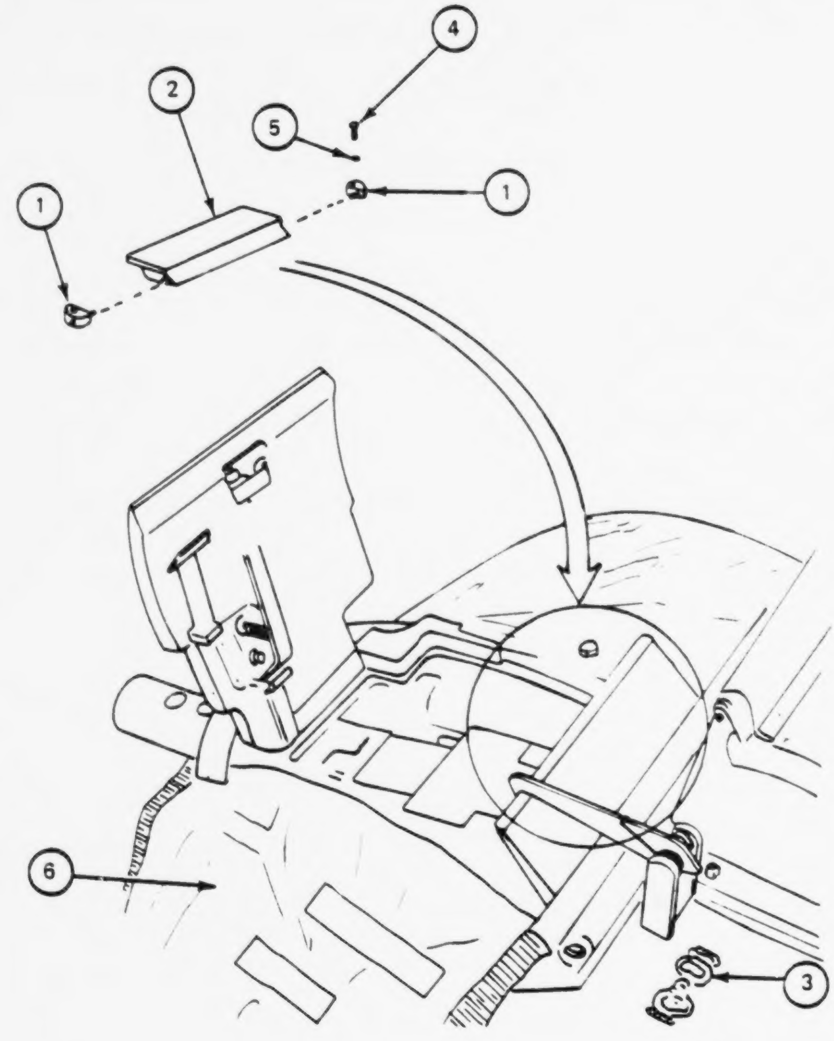
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put one hinge (1) at each end of top access door (2). |
| 2. | Put top access door (2) in place so that holes in hinges (1) line up with mounting holes in cupola (3). |
| 3. | Using socket wrench, put in two screws (4) and two lockwashers (5). |
| 4. | Put cupola cover flap (6) over top access door. |
| | END OF TASK |



Para 36-54 Cont

## 36-55. ACCESS DOOR LATCH REMOVAL PROCEDURE

TOOLS: 3/16" drift pin punch
8 oz. ball peen hammer

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open cradle cover

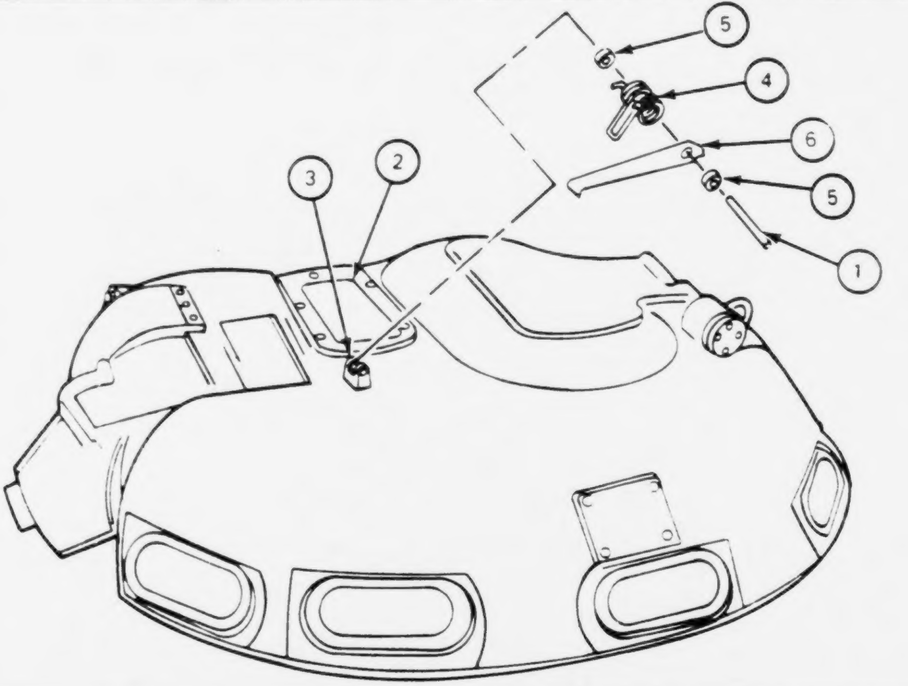
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open cradle cover (TM-10). |
| 2. | Using hammer and punch, tap pin (1) away from periscope cover (2) until it is completely through clevis (3). |
| 3. | Remove spring (4), two spacers (5), and latch (6).<br>END OF TASK |



## 36-56. ACCESS DOOR LATCH INSTALLATION PROCEDURE

TOOLS: 8 oz. ball peen hammer
3/16" drift pin punch

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to open and close cradle cover

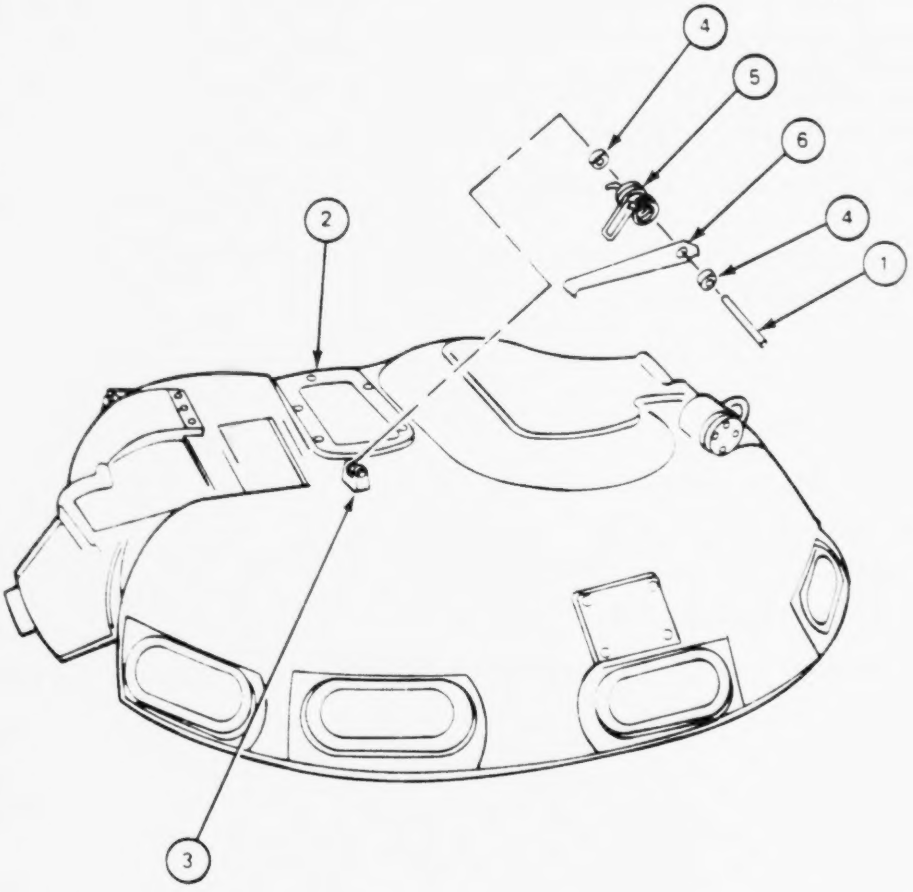
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open cradle cover (TM-10). |
| 2. | Using hammer and punch, tap pin (1) toward periscope cover (2) until pin is through one side of clevis (3). |
| 3. | Put one spacer (4) on pin (1). Put one end of spring (5) over spacer. |
| 4. | Put second spacer (4) inside spring (5). |
| 5. | Put latch (6) between opening in spring (5) so that spring tension is downward on latch. |
| 6. | Using hammer and punch, tap pin (1) through spacer (4) and latch (6) and other side of clevis (3), until each end of pin is even with clevis. |
| 7. | Close cradle cover (TM-10). |
|  | END OF TASK |



## Section 13. DIRECT VISION WINDOW

### 36-57. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| Direct Vision Window | 36-58 | 36-59 |

### 36-58. DIRECT VISION WINDOW REMOVAL PROCEDURE

TOOLS: 7/8" socket (3/8" drive)
6" extension (3/8" drive)
3/8" drive ratchet
Flat tip screwdriver
Slip joint pliers
3 oz. soft brass hammer

SUPPLIES: Wood block, 2" x 4" x 6"
Clean rags (item 15, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to:
Remove lockwire
Remove sealing compound

EQUIPMENT LOCATION INFORMATION:

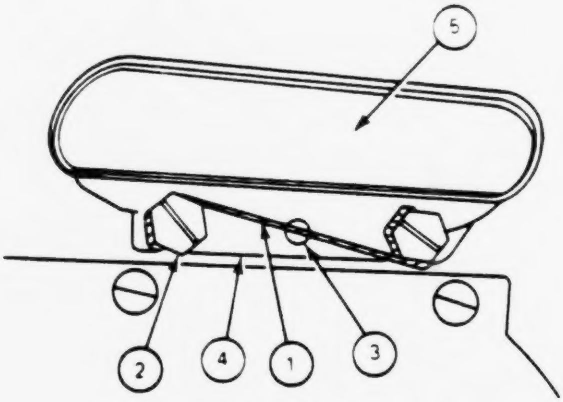
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-58. DIRECT VISION WINDOW REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>This frame is for wedge type installation. Go to frame 2 for retainer type installation. |
| 1. | Remove lockwire (1) (JPG). |
| 2. | Using socket wrench, remove two screws (2). |
| 3. | Put one screw (2) in hole (3) in center of wedge (4). |
| 4 | Using socket wrench, tighten screw (2) until wedge (4) becomes loose. Remove wedge. |
| 5 | Using one hand, push direct vision window (5) toward inside of cupola. Using other hand, remove direct vision window (5). |
| 6. | Remove old sealing compound from direct vision window (5), wedge (4), and mounting hole (JPG).<br>**END OF TASK** |

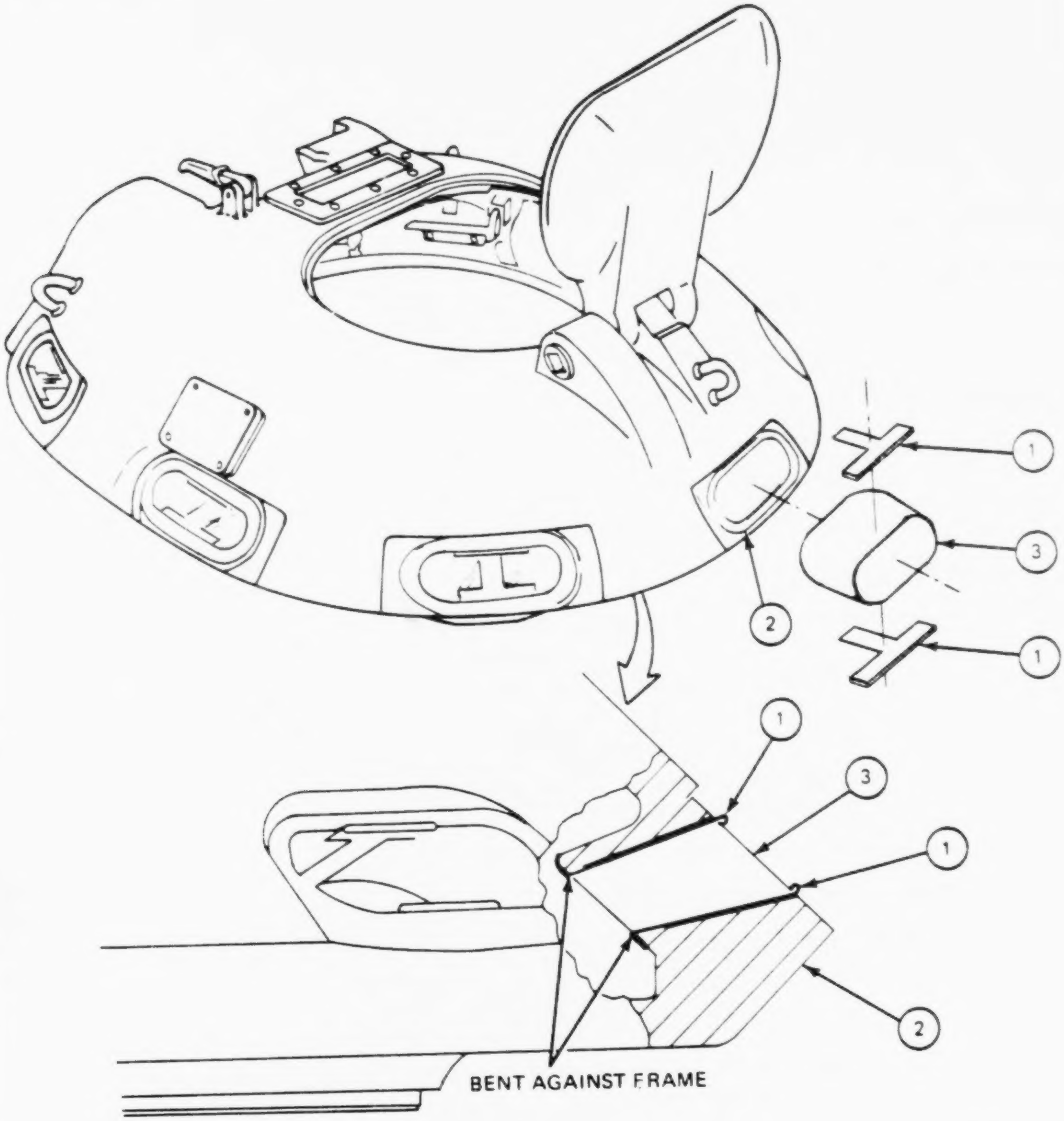


## 36-58. DIRECT VISION WINDOW REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| | **NOTE**<br>This frame is for retainer type installation. Go to frame 1 for wedge type installation. |
| 1. | Using flat tip screwdriver, pry tabs of retainer (1) away from cupola (2). |
| 2. | Using pliers, straighten tabs of retainer (1). |
| 3. | Using block of wood, with end padded with folded cloth, push firmly on vision window (3) from inside of cupola (2) until vision window breaks loose. End of wood block may be tapped with hammer to help break vision window loose. |
| 4. | Push vision window (3) and two retainers (1) out. |
| 5. | Remove old sealing compound from vision window opening (JPG). |
| | END OF TASK |

**Para 36-58 Cont**


BENT AGAINST FRAME

## 36-59. DIRECT VISION WINDOW INSTALLATION PROCEDURE

TOOLS: 7/8" socket (3/8" drive)
6" extension (3/8" drive)
3/8" drive torque wrench (0 to 50 foot-pounds)
Plastic faced hammer
Long nose pliers

SUPPLIES: Lockwire (wedge type installation only)
Retainer (11655057) (two) (for retainer type installation only)
Sealing compound (item 16, App. A)

PERSONNEL: One

REFERENCES: JPG for procedures to:
Install lockwire
Apply sealing compound
Use torque wrench

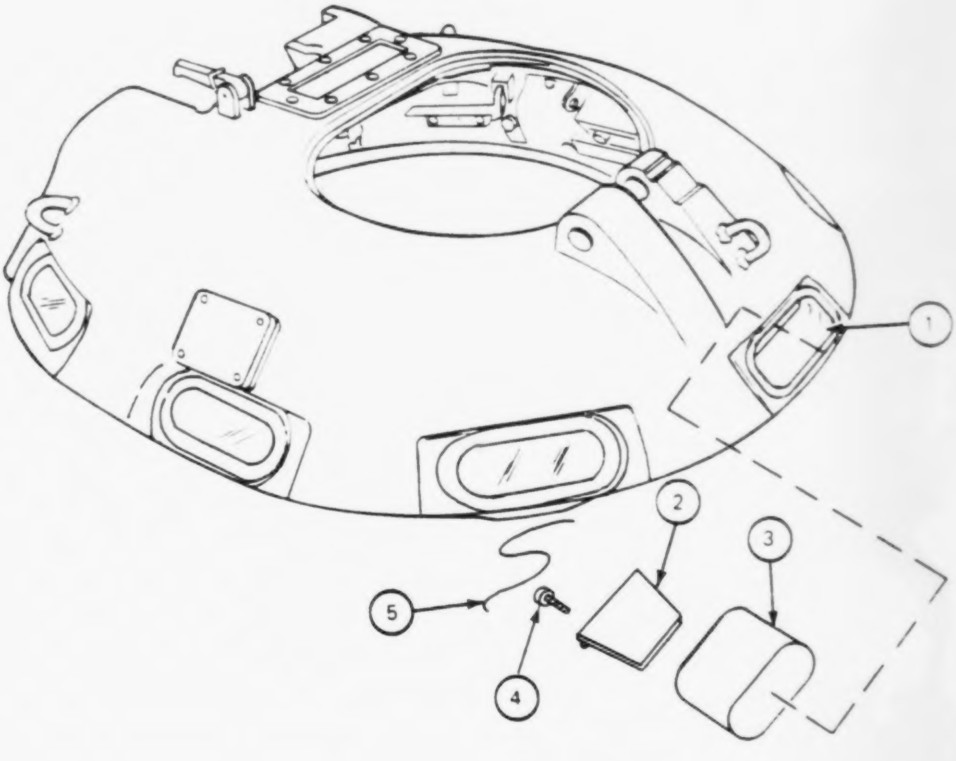
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

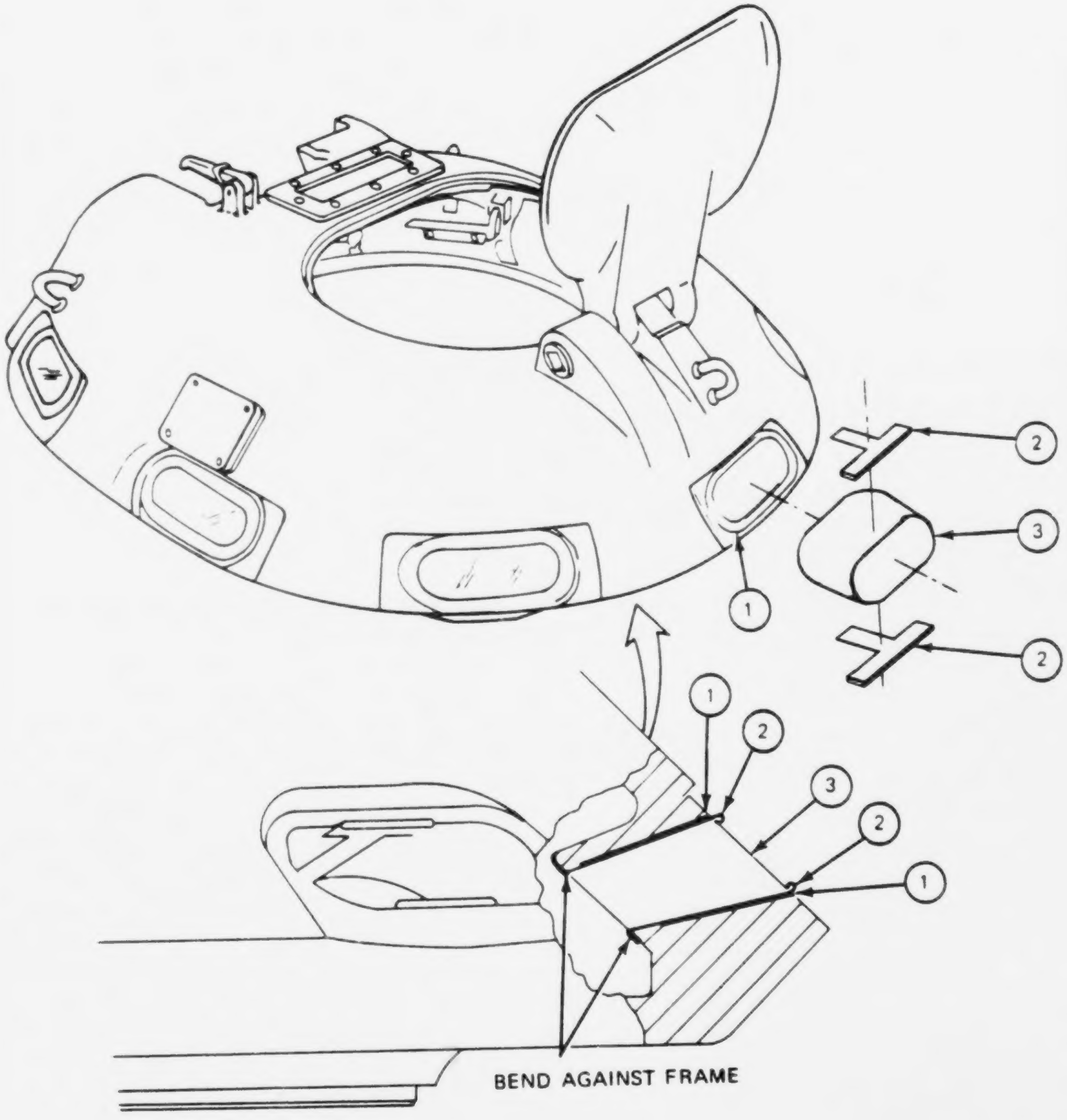
| Step | Procedure |
|---|---|
| | **NOTE**<br>This frame is for wedge type installation. Go to frame 2 for retainer type installation. |
| 1. | Put sealing compound on frame area (1) (JPG). |
| 2. | Put wedge (2) and direct vision window (3) into frame area (1). |
| 3. | Put two screws (4) in wedge (2) mounting holes. Tighten finger tight. |
| | **CAUTION**<br>Take care in tightening screws to keep from cracking direct vision window. |
| 4. | Using torque wrench, torque two screws (4) between 7 and 10 foot-pounds (JPG). |
| 5. | Using pliers, put lockwire (5) on screws (4) (JPG). |
| 6. | After sealing compound has dried, check that direct vision window (3) is water tight. |
| | END OF TASK |



## 36-59. DIRECT VISION WINDOW INSTALLATION PROCEDURE (CONT)

FRAME 2

| Step | Procedure |
|---|---|
| | **NOTE**<br>This frame is for retainer type installation. Go to frame 1 for wedge type installation. |
| 1. | Put sealing compound on frame area (1) (JPG). |
| | **NOTE**<br>Rolled part of T area of retainers will be toward center of vision window. |
| 2. | Put two new retainers (2) over and under vision window (3). |
| 3. | Put two retainers (2) and vision window (3) in frame area (1). |
| 4. | Using hammer, bend tabs of two retainers (2) against cupola frame (1) away from vision window (3). |
| 5. | After sealing compound has dried, check that vision window (3) is water tight. |
| | END OF TASK |


BEND AGAINST FRAME

# Section 14. CUPOLA AZIMUTH GEAR BOX

## 36-60. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| 1. Cupola Azimuth Gear Box | 36-61 | 36-62 |
| 2. Cupola Azimuth Gear Box Handle | 36-63 | 36-64 |

## 36-61. CUPOLA AZIMUTH GEAR BOX REMOVAL PROCEDURE

TOOLS: 9/16'' socket (3/8'' drive)
6'' extension
3/8'' drive ratchet

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

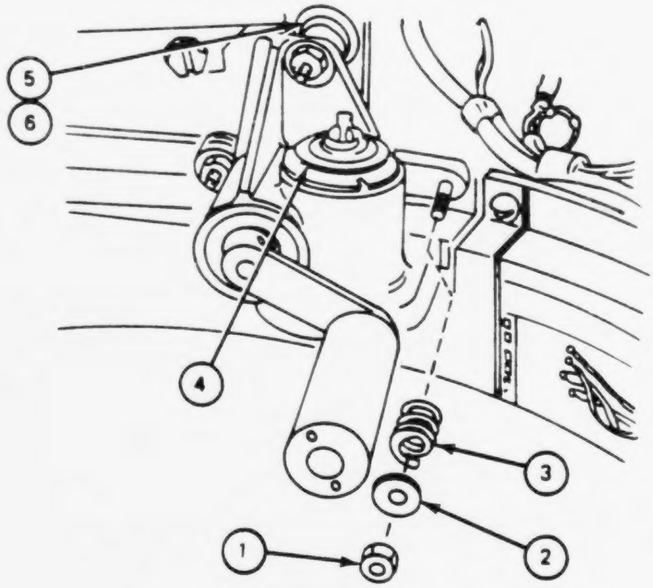
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

## 36-61. CUPOLA AZIMUTH GEAR BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, remove three nuts (1), three flat washers (2), and two springs (3) that attach azimuth gear box (4) to cupola. |
| 2. | Remove cupola azimuth gear box (4). |
| 3. | Remove spring (5) from top mounting stud (6). |
| | END OF TASK |



## 36-62. CUPOLA AZIMUTH GEAR BOX INSTALLATION PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
6" extension
3/8" drive ratchet

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to traverse cupola

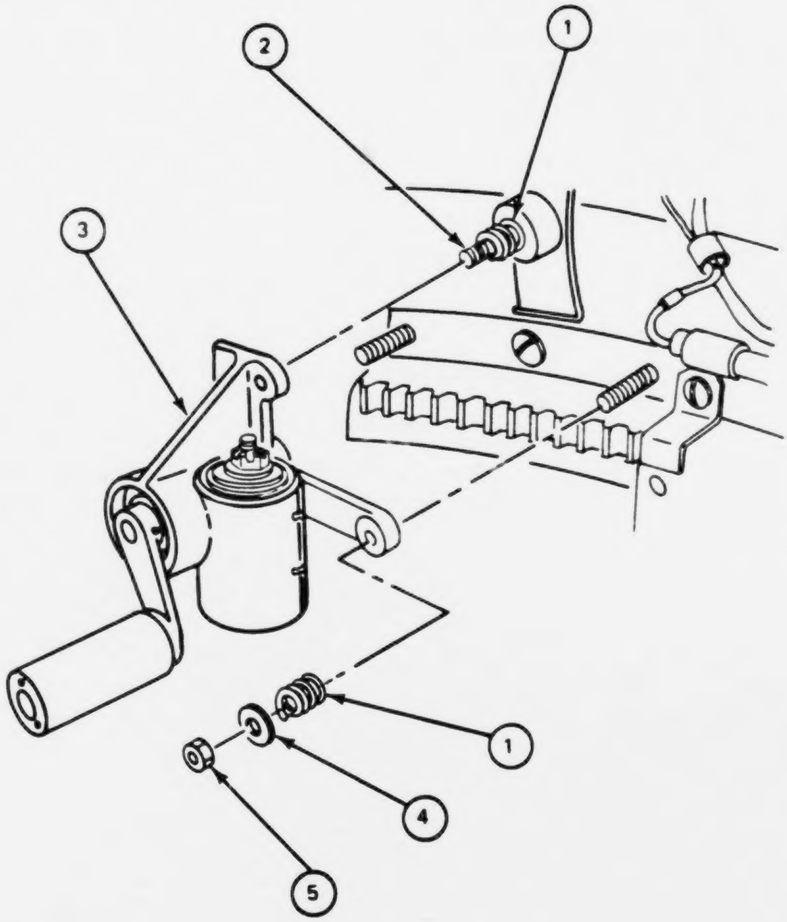
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place one spring (1), with small end facing out, on top mounting stud (2). |
| 2. | Place cupola azimuth gear box (3) on mounting studs (2). |
| 3. | Place two springs (1), with small end facing out, on lower mounting studs (2). |
| 4. | Place three flat washers (4) on mounting studs (2). |
| | **NOTE**<br>Tighten nuts in step 5 until gears mesh. |
| 5. | Using socket wrench, attach cupola azimuth gear box (3) to cupola with three nuts (5). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Traverse cupola to check cupola azimuth gear box for proper operation (TM-10). |
| | END OF TASK |



## 36-63. CUPOLA AZIMUTH GEAR BOX HANDLE REMOVAL PROCEDURE

TOOLS: 3/32'' drive pin punch
Hammer (soft brass head)

PERSONNEL: One

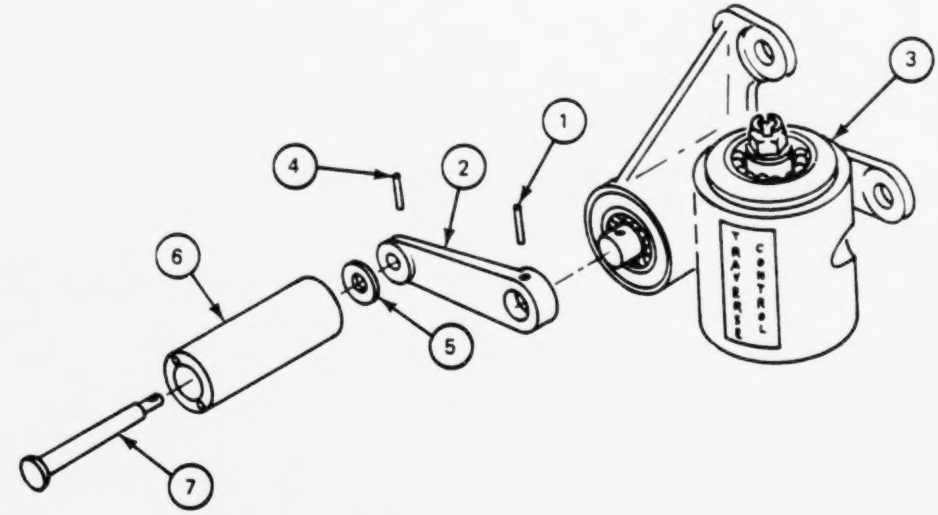
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using punch and hammer, remove pin (1) from crankshaft (2). |
| 2. | Remove crankshaft (2) from cupola azimuth gear box (3). |
| 3. | Using punch and hammer, remove pin (4) from crankshaft (2). |
| 4. | Remove washer (5), grip (6), and shoulder headed pin (7). |
|  | END OF TASK |



## 36-64. CUPOLA AZIMUTH GEAR BOX HANDLE INSTALLATION PROCEDURE

TOOLS: 3/32" drive pin punch
Hammer (soft brass head)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to traverse cupola

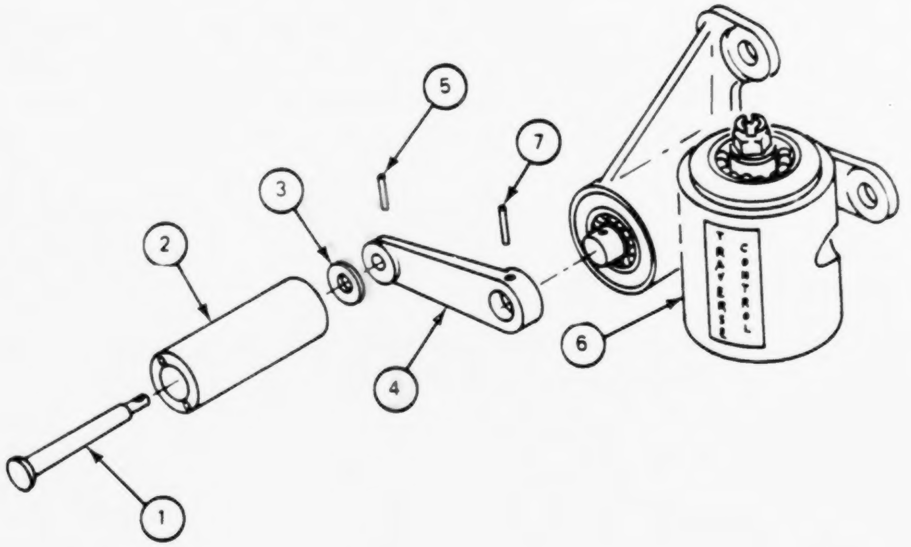
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Put shoulder headed pin (1) in grip (2). |
| 2. | Put washer (3) on shoulder headed pin (1). |
| 3. | Put crankshaft (4) on shoulder headed pin (1). |
| 4. | Using punch and hammer, tap pin (5) in crankshaft (4). |
| 5. | Put crankshaft (4) on cupola azimuth gear box (6). |
| 6. | Using punch and hammer, tap in pin (7). |
|  | **NOTE**<br>Follow-on Maintenance Action Required:<br>Traverse cupola to check cupola azimuth gear box handle for proper operation (TM-10). |
|  | END OF TASK |


TRAVERSE
CONTROL

# Section 15. CUPOLA AZIMUTH LOCK

## 36-65. MAINTENANCE PROCEDURES INDEX

| | Tasks | | | |
|---|---|---|---|---|
| **Equipment Item** | **Removal** | **Installation** | **Disassembly** | **Assembly** |
| Cupola Azimuth Lock | 36-66 | 36-67 | 36-68 | 36-69 |

## 36-66. CUPOLA AZIMUTH LOCK REMOVAL PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
6" extension (3/8" drive)
3/8" drive ratchet
Diagonal cutting pliers

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

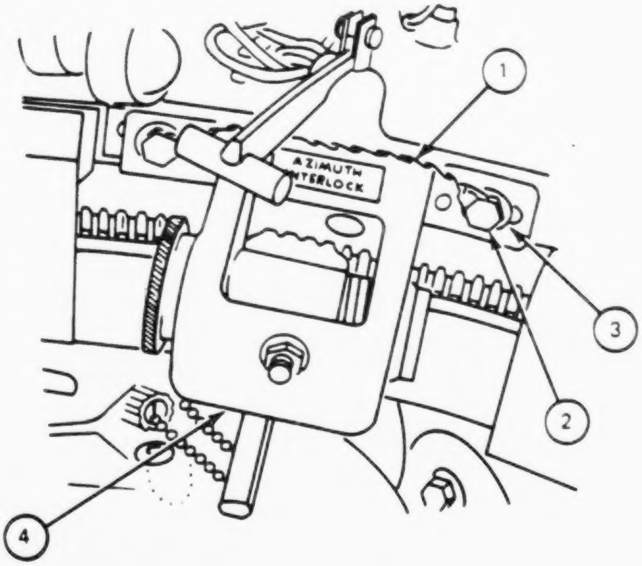
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Lock | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

## 36-66. CUPOLA AZIMUTH LOCK REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using diagonal cutting pliers, remove lockwire (1) (JPG). |
| 2. | Using socket wrench, remove two screws (2) and two flat washers (3). |
| | **NOTE**<br>If shims are used for alignment, remove them with cupola azimuth lock (4). |
| 3. | Remove cupola azimuth lock (4). |
| | END OF TASK |



## 36-67. CUPOLA AZIMUTH LOCK INSTALLATION PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
6" extension
3/8" drive ratchet
Needle nose pliers

SUPPLIES: Safety wire

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to traverse cupola
JPG for procedure to install lockwire

EQUIPMENT LOCATION INFORMATION:

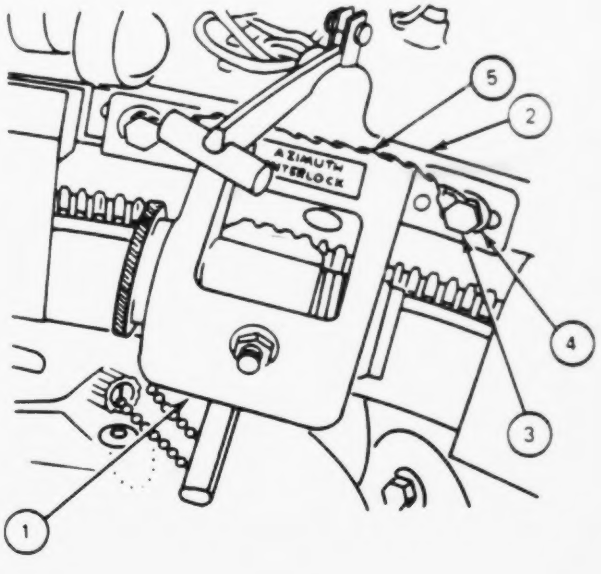
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Turret Traverse Lock | FO-3 | 7 |
| Cupola Azimuth Lock | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Turret traverse lock set to LOCKED

## 36-67. CUPOLA AZIMUTH LOCK INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| | **NOTE**<br>If shims were removed with cupola azimuth lock (1), put them in before installing lock. |
| 1. | Using socket wrench, attach azimuth lock (1) to cupola (2) with two washers (3) and two screws (4). |
| 2. | Using pliers, install lockwire (5) between two screws (4) (JPG). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Traverse cupola to check cupola azimuth lock for proper operation (TM-10). |
| | END OF TASK |



## 36-68. CUPOLA AZIMUTH LOCK DISASSEMBLY PROCEDURE

TOOLS: 9/16" open end wrench
Flat tip screwdriver
Long round nose pliers

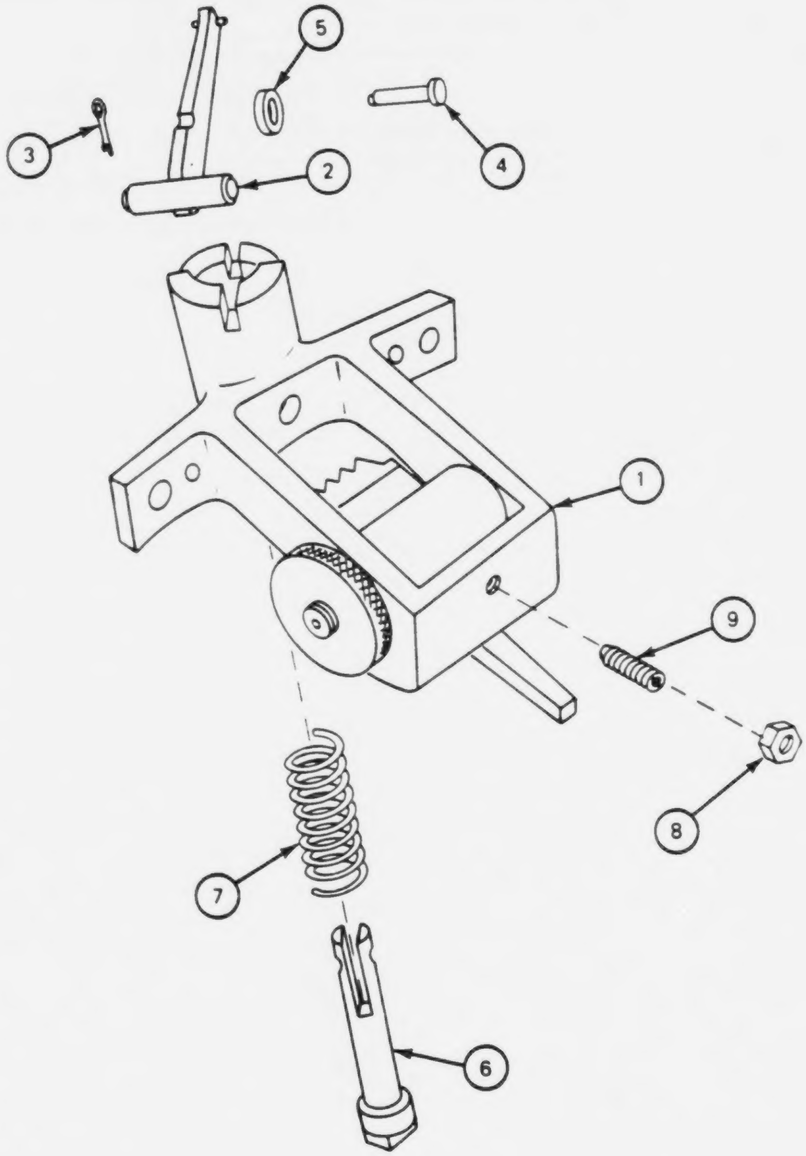
PERSONNEL: One

REFERENCES: JPG for procedure to remove cotter pin

PRELIMINARY PROCEDURES: Remove azimuth lock (para 36-66)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place azimuth lock (1) on flat surface. |
| 2. | Press down on cam (2). Using pliers, remove cotter pin (3), retaining pin (4) and roller (5) (JPG). |
| 3. | Release pressure from cam (2). |
| 4. | Remove cam (2). |
| 5. | Remove interlock pin (6) and spring (7). |
| 6. | Using wrench, remove locking nut (8). |
| 7. | Using screwdriver, remove plunger (9). |
|  | END OF TASK |



## 36-69. CUPOLA AZIMUTH LOCK ASSEMBLY PROCEDURE

TOOLS: 9/16" open end wrench
Flat tip screwdriver
Long round nose pliers

SUPPLIES: Cotter pin

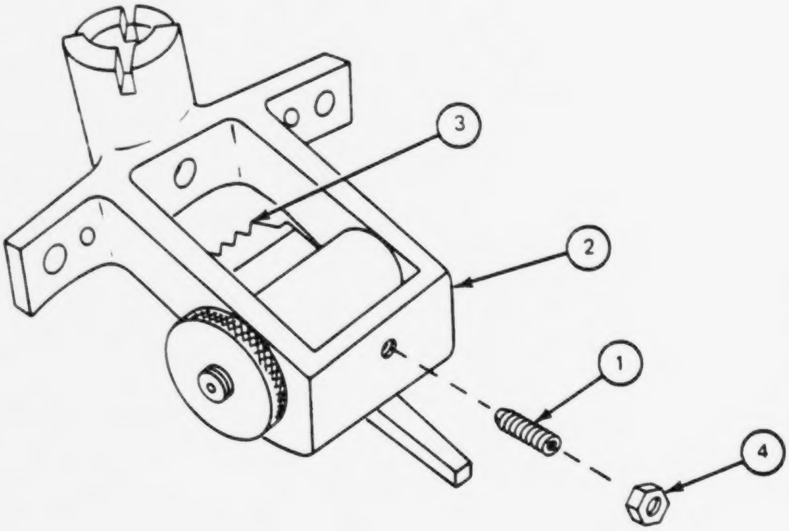
PERSONNEL: One

REFERENCE: JPG for procedure to install cotter pin

## 36-69. CUPOLA AZIMUTH LOCK ASSEMBLY PROCEDURE (CONT)

**FRAME 1**

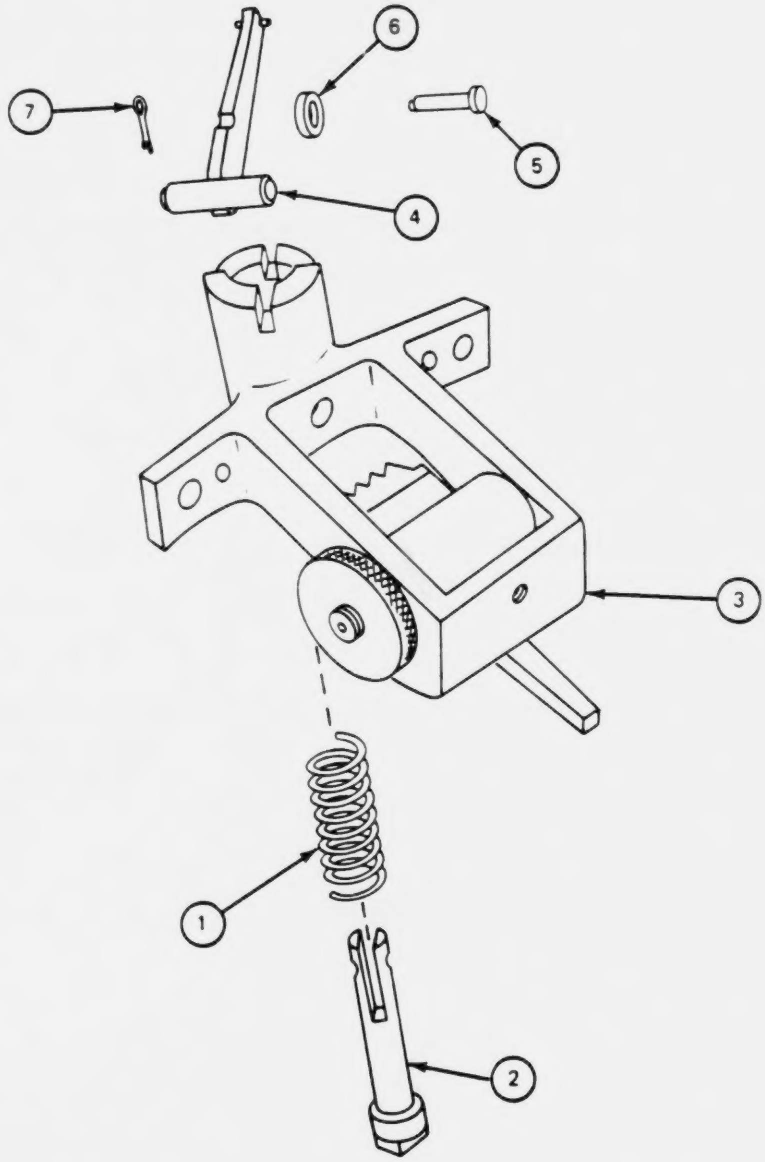
| Step | Procedure |
|---|---|
| 1. | Place plunger (1) in azimuth lock (2). |
| 2. | Using screwdriver, tighten plunger (1) until gear rack (3) is held in up or down position. |
| 3. | Move gear rack (3) from up position to down position to make sure it does not bind. |
| 4. | Put locking nut (4) on plunger (1). |
| 5. | Using screwdriver to hold plunger (1), use wrench to tighten locking nut (4).<br>**NOTE**<br>If there is binding in step 6, loosen locking nut (4). Unscrew plunger (1) 1/4 turn and repeat steps 5 and 6. |
| 6. | Move gear rack (3) from up position to down position to make sure it does not bind.<br>GO TO FRAME 2 |



## 36-69. CUPOLA AZIMUTH LOCK ASSEMBLY PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Place spring (1) on interlock pin (2). Put spring and interlock pin in azimuth lock (3). |
| 2. | Place cam (4) in slot in interlock pin (2). |
| 3. | Push down on cam (4). Put in retaining pin (5) and roller (6). |
| 4. | Using pliers, put new cotter pin (7) in retaining pin (5) (JPG). |
| | END OF TASK |



## Section 16. ELEVATION SCREW JACK

### 36-70. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks |  |
|---|---|---|
|  | Removal | Installation |
| 1. Elevation Screw Jack Handle | 36-71 | 36-72 |
| 2. Elevation Screw Jack Handle Switch | 36-73 | 36-74 |

### 36-71. ELEVATION SCREW JACK HANDLE REMOVAL PROCEDURE

TOOLS: External retaining ring pliers
Flat tip screwdriver

PERSONNEL: One

REFERENCES: JPG for procedures to:
Disconnect electrical connectors
Remove retaining ring

EQUIPMENT LOCATION INFORMATION:

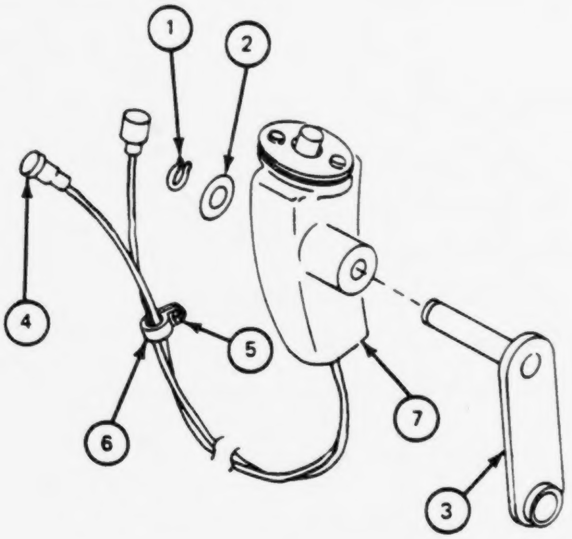
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Elevation Screw Jack | FO-2 | 21 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-71. ELEVATION SCREW JACK HANDLE REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using pliers, remove retaining ring (1) and flat washer (2) from hand crank (3) (JPG). |
| 2. | Disconnect two electrical connectors (4) (JPG). |
| 3. | Using screwdriver, remove screw (5) that attaches clamp (6) to cupola. |
| 4. | Remove screw jack handle (7) from hand crank (3). |
|  | END OF TASK |



## 36-72. ELEVATION SCREW JACK HANDLE INSTALLATION PROCEDURE

TOOLS: External retaining ring pliers
Flat tip screwdriver

SUPPLIES: New retaining ring

PERSONNEL: One

REFERENCES: JPG for procedures to:
Connect electrical connectors
Install retaining ring
TM 9-2350-222-10 for procedure to elevate and depress caliber .50 machine gun

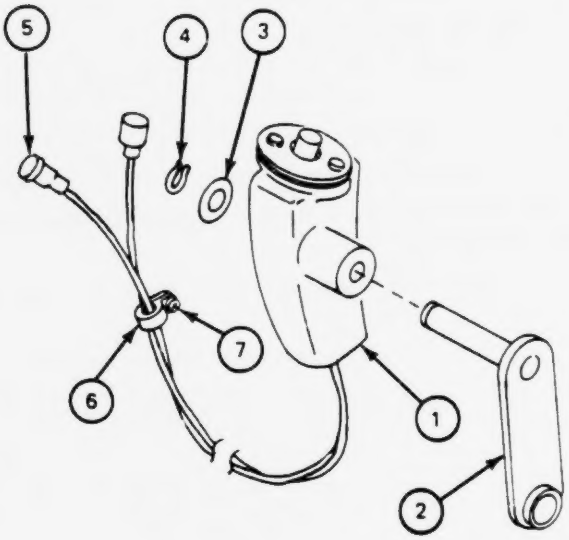
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Elevation Screw Jack | FO-2 | 21 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place screw jack handle (1) on hand crank (2). |
| 2. | Place flat washer (3) on hand crank (2). |
| 3. | Using pliers, install new retaining ring (4) (JPG). |
| 4. | Connect two electrical connectors (5) (JPG). |
| 5. | Using screwdriver, attach clamp (6) to cupola with screw (7). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Elevate and depress caliber .50 machine gun to check elevation screw jack handle for proper operation (TM-10). |
| | END OF TASK |



## 36-73. ELEVATION SCREW JACK HANDLE SWITCH REMOVAL PROCEDURE

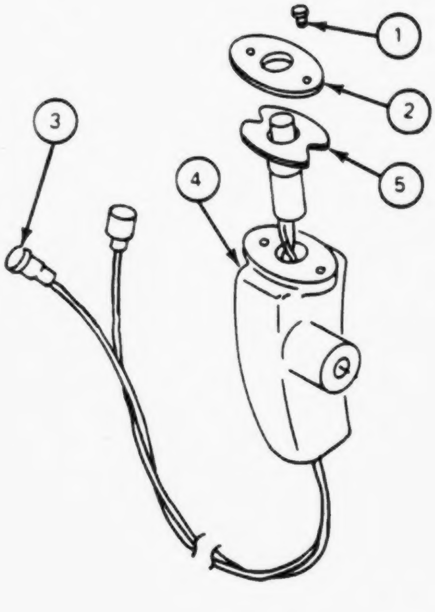
TOOLS: Flat tip screwdriver

PERSONNEL: One

PRELIMINARY PROCEDURES: Remove elevation screw jack handle (para 36-71)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver, remove two screws (1). |
| 2. | Remove cap (2). |
| | **NOTE**<br>Electrical leads (3) have to be pulled through screw jack handle (4) one at a time. |
| 3. | Remove screw jack handle switch (5) and electrical leads (3) from screw jack handle (4). |
| | END OF TASK |



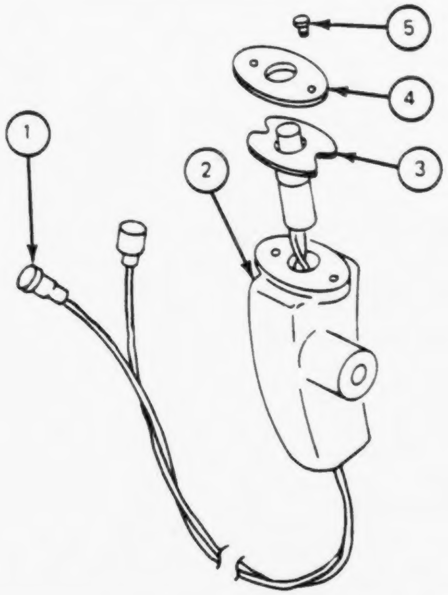
## 36-74. ELEVATION SCREW JACK HANDLE SWITCH INSTALLATION PROCEDURE

TOOLS: Flat tip screwdriver

PERSONNEL: One

**FRAME 1**

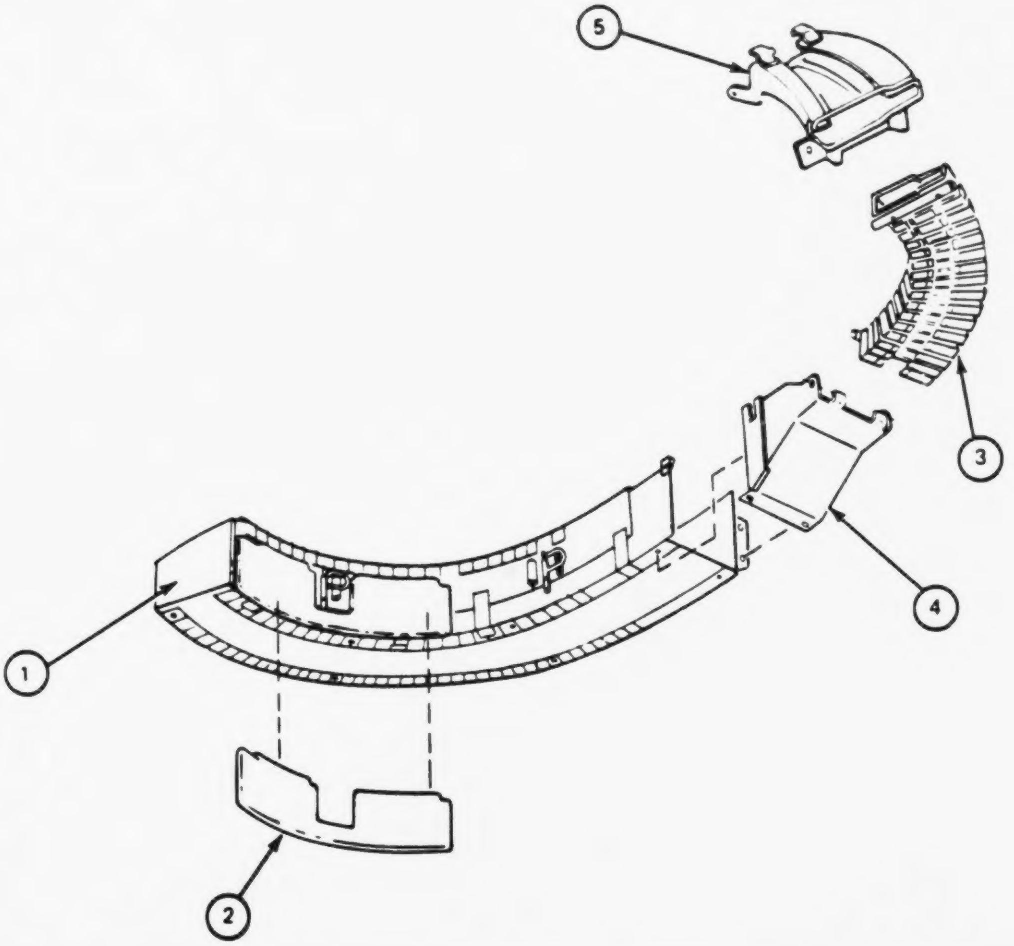
| Step | Procedure |
|---|---|
| | **NOTE**<br>Electrical leads (1) have to be pushed through screw jack handle (2) one at a time. |
| 1. | Push electrical leads (1) through screw jack handle (2). |
| 2. | Put screw jack handle switch (3) and cup (4) on screw jack handle (2) for installation. |
| 3. | Using screwdriver, put in two screws (5). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install elevation screw jack handle (para 36-72). |
| | END OF TASK |



## Section 17. CUPOLA MACHINE GUN AMMUNITION FEED SYSTEM

### 36-75. MAINTENANCE PROCEDURES INDEX

| Equipment Item | Tasks<br>Removal | Installation |
|---|---|---|
| 1. Ammunition Box | 36-76 | 36-77 |
| 2. Pad | 36-78 | 36-79 |
| 3. Flexible Chute | 36-80 | 36-81 |
| 4. Ammunition Track | 36-82 | 36-83 |
| 5. Ammunition Fixed Feed Chute | 36-84 | 36-85 |



## 36-76. AMMUNITION BOX REMOVAL PROCEDURE

TOOLS: 7/16" combination wrench
7/16" socket (3/8" drive)
3/8" drive ratchet
Flat tip screwdriver
5" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to operate cupola caliber .50 machine gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

GENERAL INSTRUCTIONS:

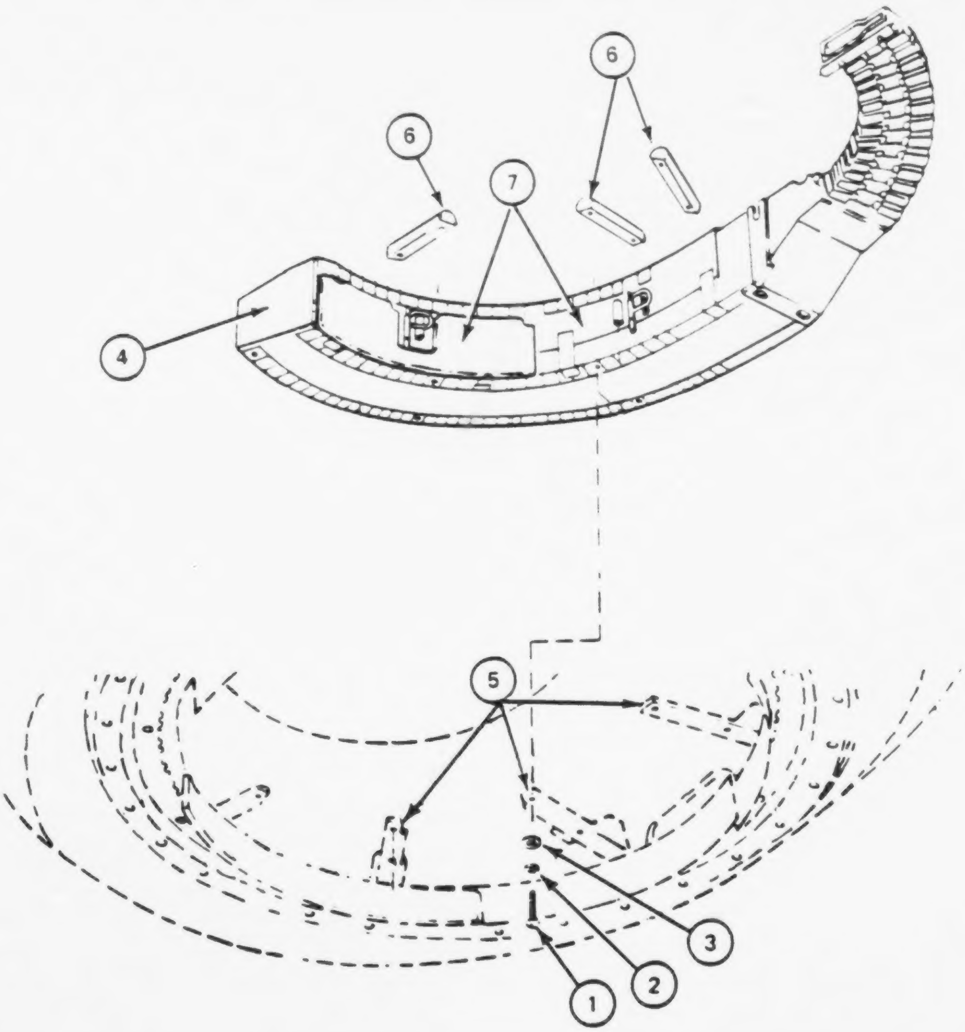
**WARNING**

Clear all ammunition and brass from caliber .50 machine gun and ammunition feed system (TM-10). Remove all live ammunition from work area.

## 36-76. AMMUNITION BOX REMOVAL PROCEDURE (CONT)

**FRAME 1**

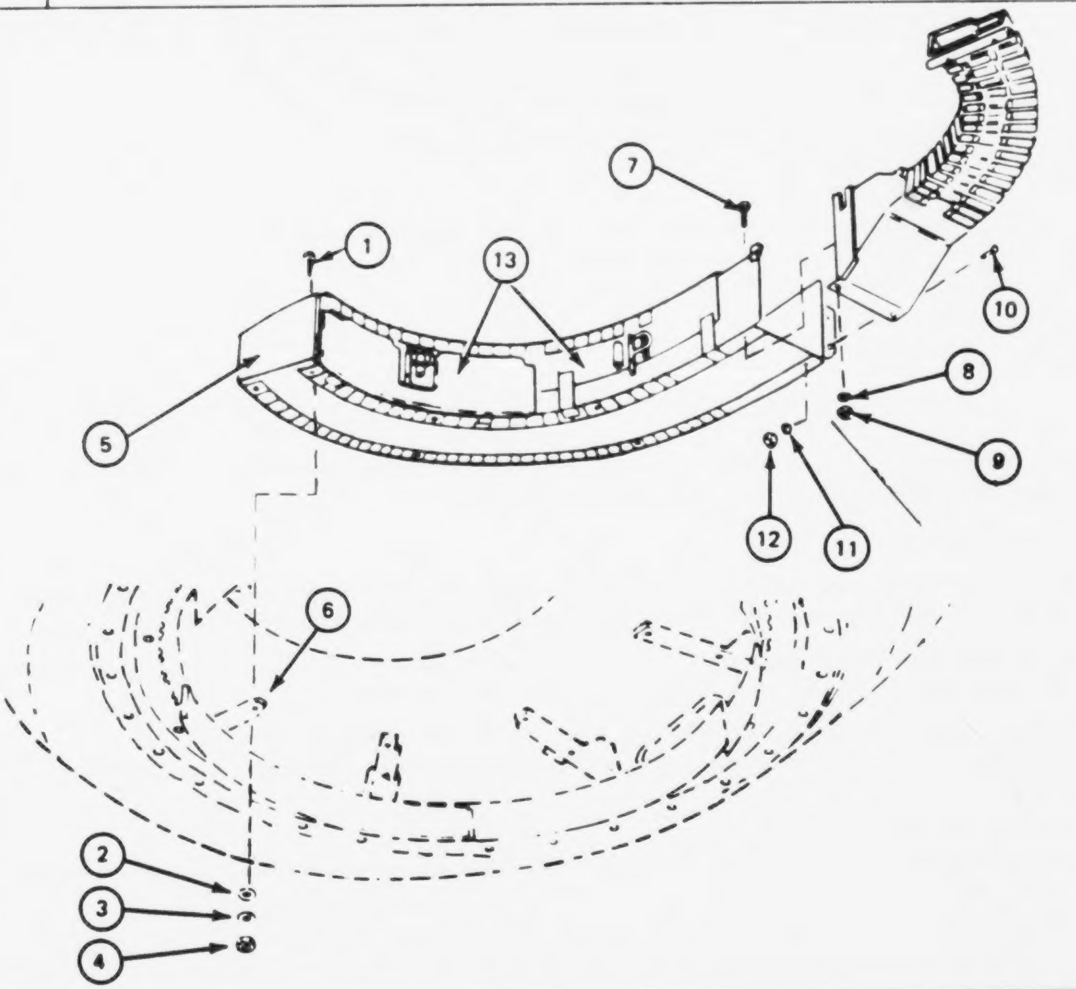
| Step | Procedure |
|---|---|
| 1. | Using combination wrench, remove six screws (1), six lockwashers (2), and six flat washers (3) that attach ammunition box (4) to three front supports (5) with three half-round metal blocks (6) (inside box). |
| 2. | Open doors (7) and remove three half-round metal blocks (6) from inside ammunition box (4).<br>GO TO FRAME 2 |



## 36-76. AMMUNITION BOX REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using screwdriver and wrench, remove two screws (1), two flat washers (2), two lockwashers (3), and two nuts (4) that attach ammunition box (5) to rear support (6). |
| 2. | Using screwdriver and wrench, remove two screws (7), two lockwashers (8), and two nuts (9) that attach bottom of ammunition box (5) to ammunition track. |
| 3. | Using socket and combination wrench, remove two screws (10), two lockwashers (11), and two nuts (12) that attach side of ammunition box (5) to ammunition track. |
| 4. | Close doors (13) and remove ammunition box (5).<br>END OF TASK |



## 36-77. AMMUNITION BOX INSTALLATION PROCEDURE

TOOLS: 7/16" combination wrench
7/16" socket (3/8" drive)
3/8" drive ratchet
5" extension (3/8" drive)
Flat tip screwdriver

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to operate cupola caliber .50 machine gun

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel **MASTER BATTERY** switch set to OFF

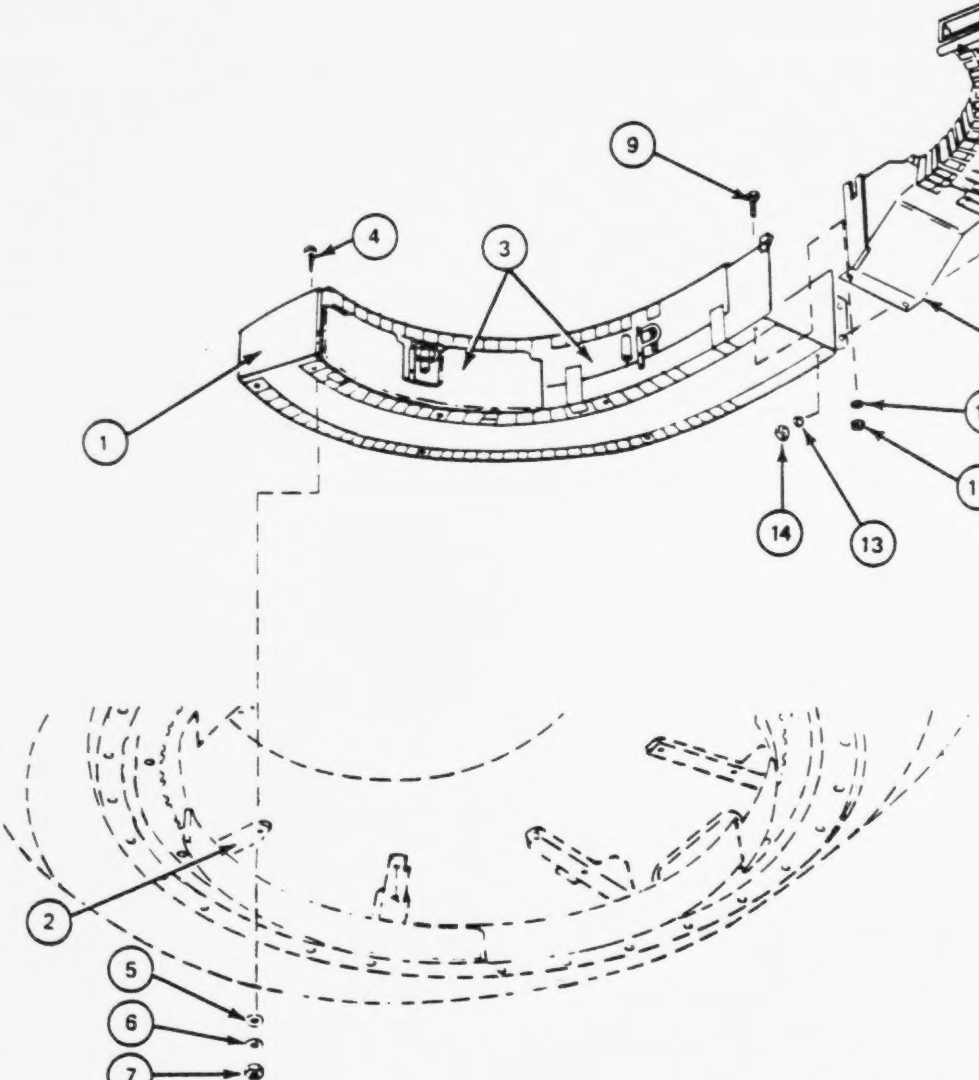
GENERAL INSTRUCTIONS:

**WARNING**

Clear all ammunition and brass from cupola machine gun and ammunition feed system (TM-10). Remove all live ammunition from work area.

**FRAME 1**

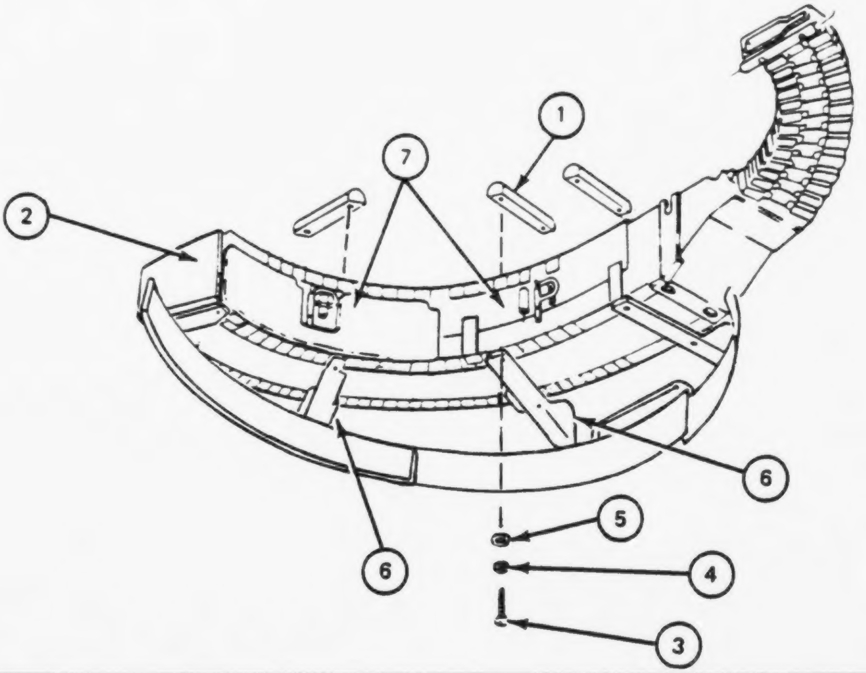
| Step | Procedure |
|---|---|
| 1. | Place ammunition box (1) on mounting brackets (2). |
| 2. | Open doors (3). |
| 3. | Using screwdriver and wrench, attach ammunition box (1) to rear bracket (2) with two screws (4), two flat washers (5), two lockwashers (6), and two nuts (7). |
| 4. | Using screwdriver and wrench, attach bottom of ammunition box (1) to ammunition track (8) with two screws (9), two lockwashers (10), and two nuts (11). |
| 5. | Using socket and combination wrenches, attach side of ammunition box (1) to ammunition track (8) with two screws (12) and two lockwashers (13), and two nuts (14).<br>GO TO FRAME 2 |



## 36-77. AMMUNITION BOX INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Place three half-round metal blocks (1) into ammunition box (2). |
| 2. | Using wrench, put in six screws (3), six lockwashers (4), and six flat washers (5) holding three half-round metal blocks (1) and ammunition box (2) to three mounting brackets (6). |
| 3. | Close doors (7). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>After complete installation of the cupola machine gun feed system, operate caliber .50 machine gun to check for proper operation (TM-10). |
| | END OF TASK |



## 36-78. PAD REMOVAL PROCEDURE

TOOLS: Putty knife

PERSONNEL: One

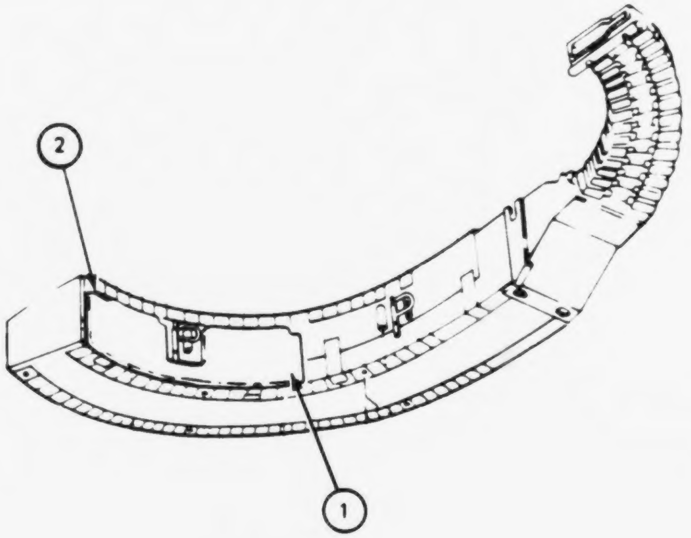
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using putty knife, scrape damaged pad (1) from metal surface (2).<br>END OF TASK |



## 36-79. PAD INSTALLATION PROCEDURE

TOOLS: Wire brush
Paint brush

SUPPLIES: New pad
Adhesive (item 1, App. A)
Clean cloth (item 15, App. A)

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

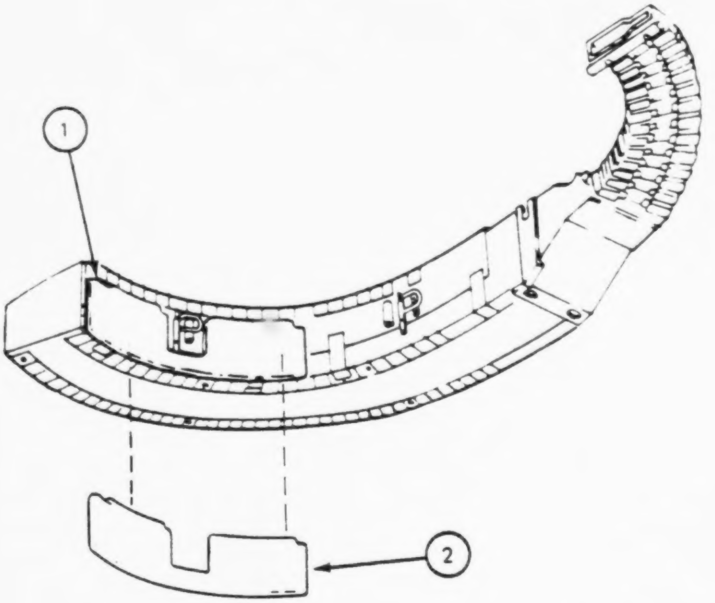
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-79. PAD INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wire brush and clean cloth, remove any paint, oil, adhesive, or grease from metal surface (1). |
| 2. | Using paint brush, put a thin coat of adhesive on metal surface (1).<br>**NOTE**<br>Allow enough time for adhesive to become tacky. |
| 3. | Press on new pad (2).<br>END OF TASK |



## 36-80. FLEXIBLE CHUTE REMOVAL PROCEDURE

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

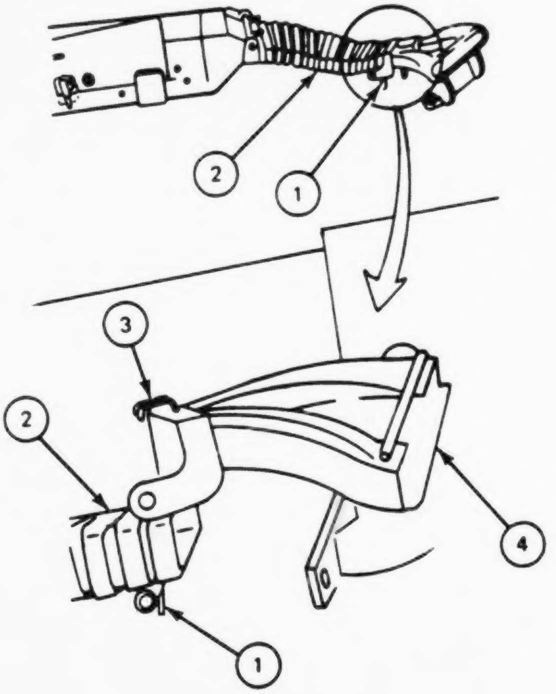
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-80. FLEXIBLE CHUTE REMOVAL PROCEDURE (CONT)

**FRAME 1**

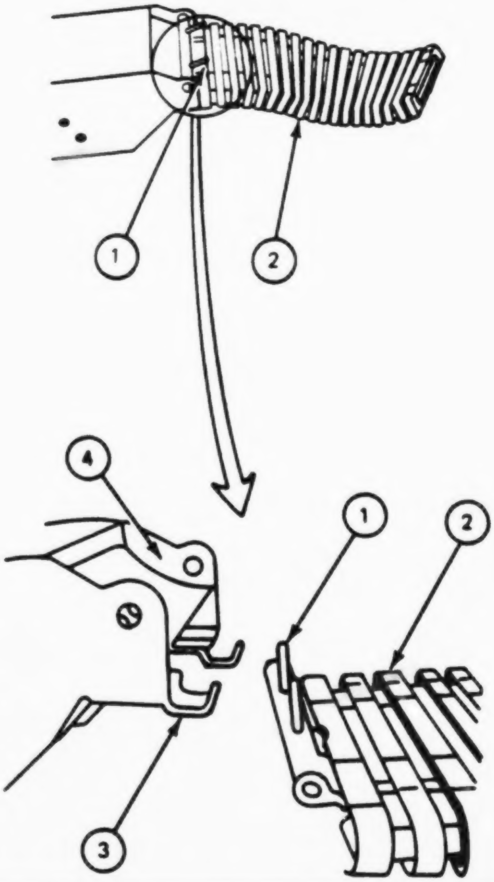
| Step | Procedure |
|---|---|
| 1. | Squeeze two locking pins (1) in toward middle of flexible chute (2) and place pins in locked position. |
| 2. | Apply even pressure to flexible chute (2) and pull down enough to clear two tabs (3) that hold flexible chute to fixed chute (4).<br>GO TO FRAME 2 |



## 36-80. FLEXIBLE CHUTE REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Squeeze two locking pins (1) in toward middle of flexible chute (2) and place pins in locked position. |
| 2. | Apply even pressure to flexible chute (2) and push up enough to free flexible chute from two tabs (3) that hold chute to ammunition track (4).<br>END OF TASK |



## 36-81. FLEXIBLE CHUTE INSTALLATION PROCEDURE

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to operate cupola caliber .50 machine gun

EQUIPMENT LOCATION INFORMATION:

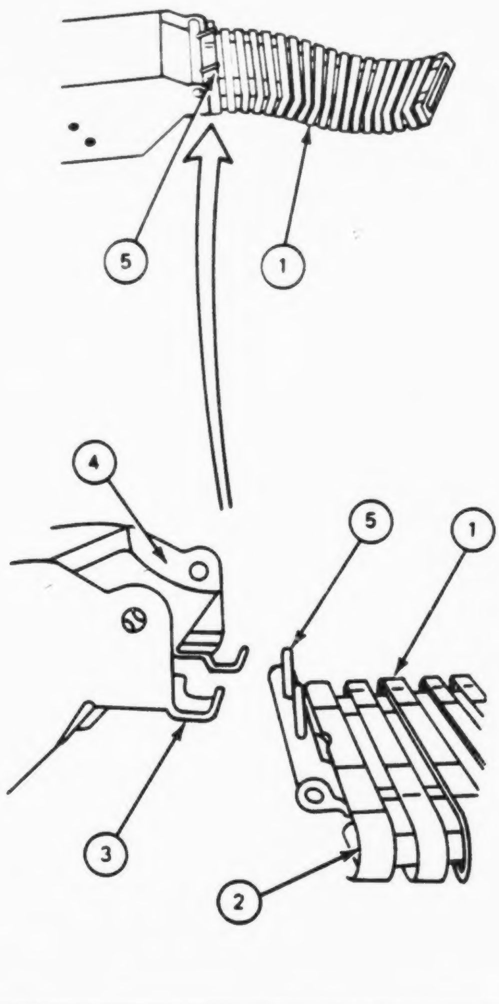
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-81. FLEXIBLE CHUTE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place flexible chute (1) so that first link (2) will rest in two tabs (3) of ammunition track (4). |
| 2. | Release two locking pins (5) to lock flexible chute to ammunition track (4).<br>GO TO FRAME 2 |



## 36-81. FLEXIBLE CHUTE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

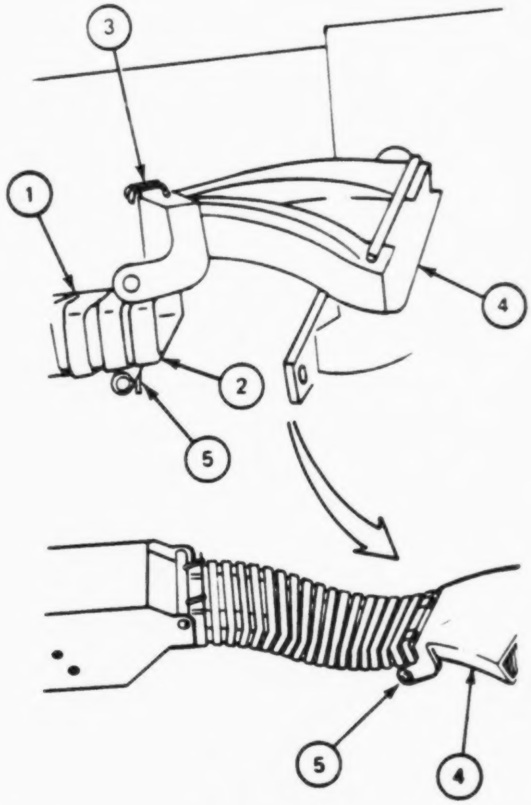
| Step | Procedure |
|---|---|
| 1. | Place flexible chute (1) so first link (2) will rest in two tabs (3) of fixed ammunition chute (4). |
| 2. | Release two locking pins (5) to lock flexible chute (1) to fixed ammunition chute (4). |

**NOTE**

Follow-on Maintenance Action Required:

After complete installation of the cupola machine gun ammunition feed system, check for proper operation (TM-10).

END OF TASK



## 36-82. AMMUNITION TRACK REMOVAL PROCEDURE

TOOLS: 7/16" combination wrench
7/16" socket (3/8" drive)
5" extension (3/8" drive)
3/8" drive ratchet
Flat tip screwdriver

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

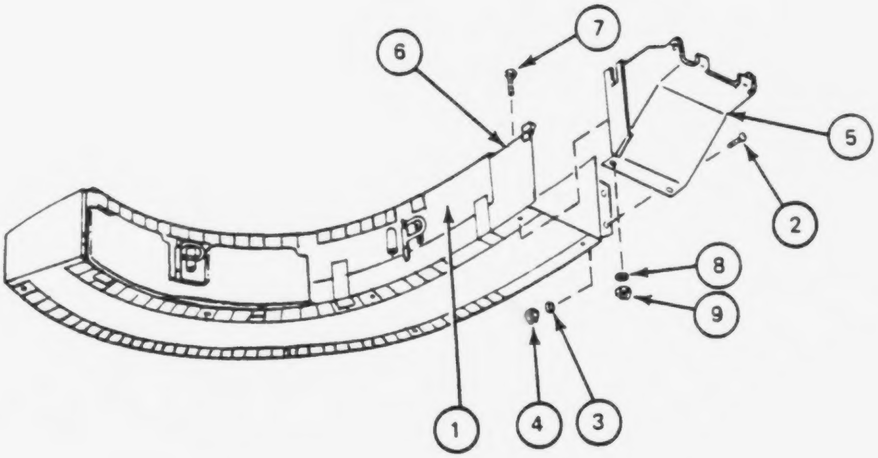
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

PRELIMINARY PROCEDURES: Remove flexible chute (para 36-80)

## 36-82. AMMUNITION TRACK REMOVAL PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Open door (1). |
| 2. | Using socket and combination wrenches, remove two screws (2), two lockwashers (3), and two nuts (4) that attach side of ammunition track (5) to ammunition box (6). |
| 3. | Using screwdriver and combination wrench, remove two screws (7), two lockwashers (8), and two nuts (9) that attach bottom of ammunition track (5) to ammunition box (6). |
| 4. | Remove ammunition track (5). |
|  | END OF TASK |



## 36-83. AMMUNITION TRACK INSTALLATION PROCEDURE

TOOLS: 7/16" combination wrench
7/16" socket (3/8" drive)
5" extension (3/8" drive)
3/8" drive ratchet
Flat tip screwdriver

PERSONNEL: One

EQUIPMENT LOCATION INFORMATION:

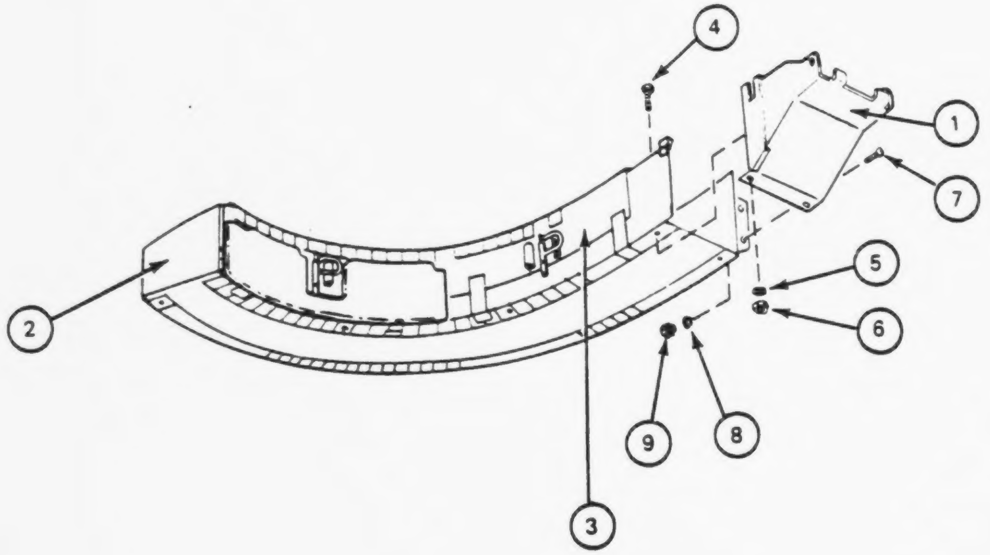
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-83. AMMUNITION TRACK INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place ammunition track (1) on ammunition box (2) for installation. |
| 2. | Open door (3). |
| 3. | Using screwdriver and combination wrench, attach bottom of ammunition track (1) to ammunition box (2), with two screws (4), two lockwashers (5), and two nuts (6). |
| 4. | Using combination wrench and socket wrench, attach side of ammunition track (1) to ammunition box (2), with two screws (7), two lockwashers (8), and two nuts (9). |
| | **NOTE**<br>Follow-on Maintenance Action Required:<br>Install flexible chute (para 36-81). |
| | END OF TASK |



## 36-84. AMMUNITION FIXED FEED CHUTE REMOVAL PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
3" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to remove caliber .50 machine gun

EQUIPMENT LOCATION INFORMATION:

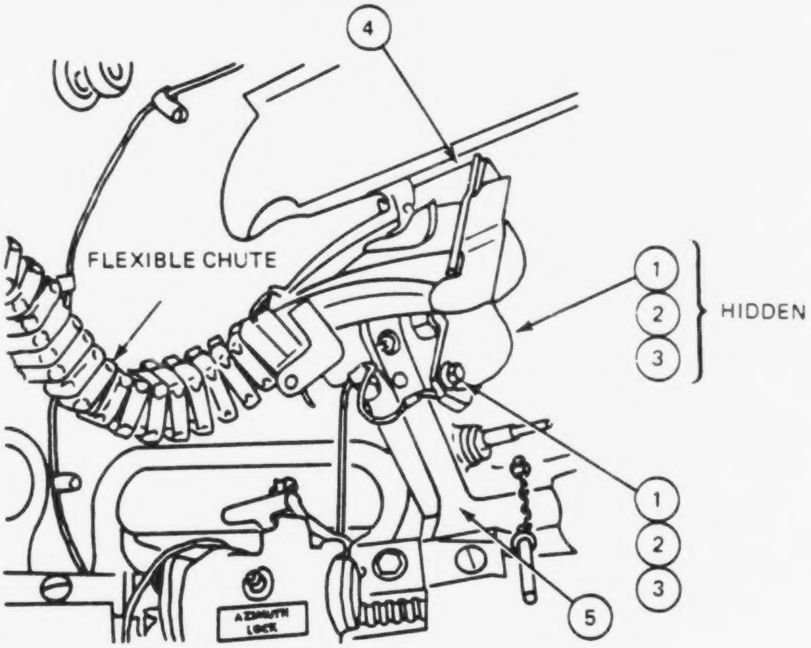
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Flexible Chute Assembly | FO-2 | 20 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF
Caliber .50 machine gun removed (TM-10)

## 36-84. AMMUNITION FIXED FEED CHUTE REMOVAL PROCEDURE (CONT)

**FRAME 1**

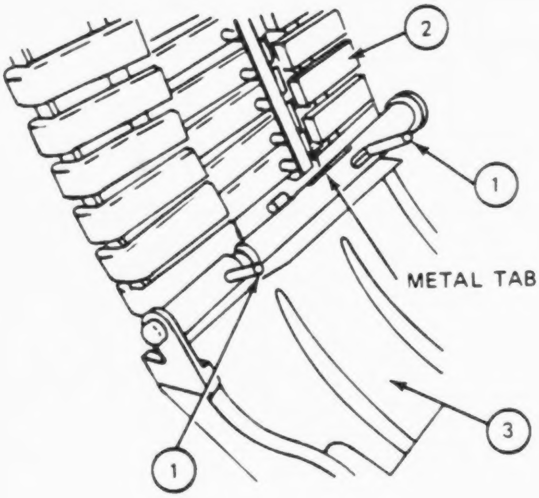
| Step | Procedure |
|---|---|
| 1. | Using socket wrench, remove two screws (1), two flat washers (2), and two lockwashers (3) that attach fixed chute (4) to cradle (5).<br>GO TO FRAME 2 |

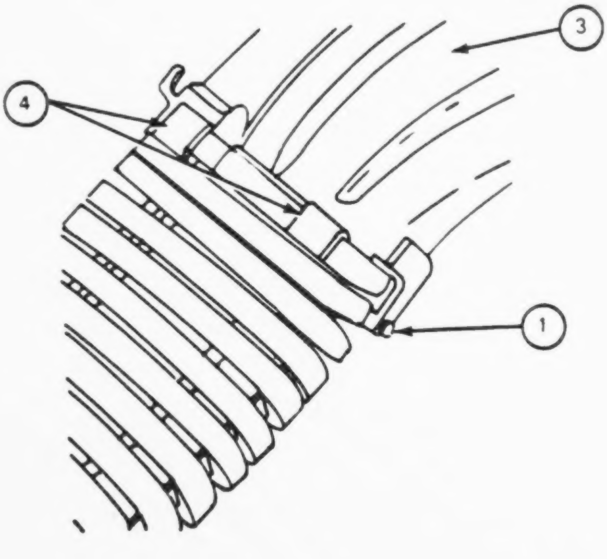

4
FLEXIBLE CHUTE
1
2
3
HIDDEN
1
2
3
5
AZIMUTH LOCK

## 36-84. AMMUNITION FIXED FEED CHUTE REMOVAL PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| | **NOTE**<br>When two locking pins (1) are moved toward center of flexible chute (2), they can then be turned to hold-open position (these pins are spring-loaded). When pins are in hold-open position, flexible chute can be separated from fixed chute (3) by pushing fixed chute away from hooks (4). |
| 1. | Slide two locking pins (1) inward toward middle of flexible chute (2). |
| 2. | Remove fixed chute (3). |
| | END OF TASK |


METAL TAB



## 36-85. AMMUNITION FIXED FEED CHUTE INSTALLATION PROCEDURE

TOOLS: 9/16" socket (3/8" drive)
3/8" drive ratchet
3" extension (3/8" drive)

PERSONNEL: One

REFERENCES: TM 9-2350-222-10 for procedure to install caliber .50 machine gun

EQUIPMENT LOCATION INFORMATION:

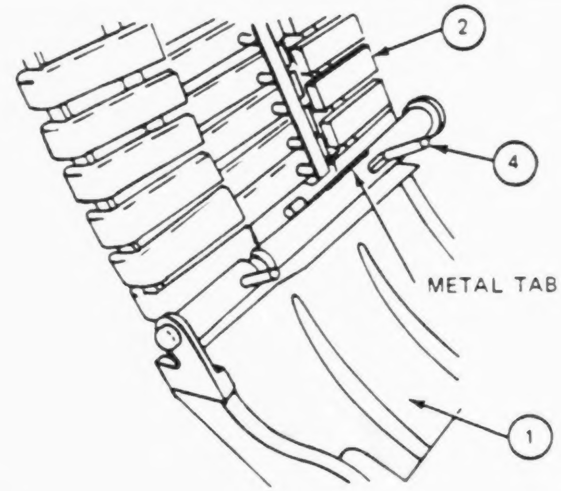
| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Flexible Chute | FO-2 | 20 |

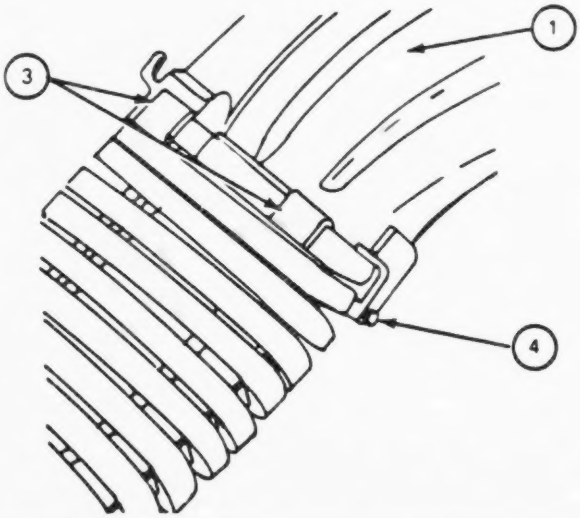
EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

## 36-85. AMMUNITION FIXED FEED CHUTE INSTALLATION PROCEDURE (CONT)

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Place fixed chute (1) in position on flexible chute (2). Make sure hooks (3) are attached to flexible chute. |
| 2. | Release locking pins (4) and slide them outward until they lock in position in fixed chute (1).<br>GO TO FRAME 2 |





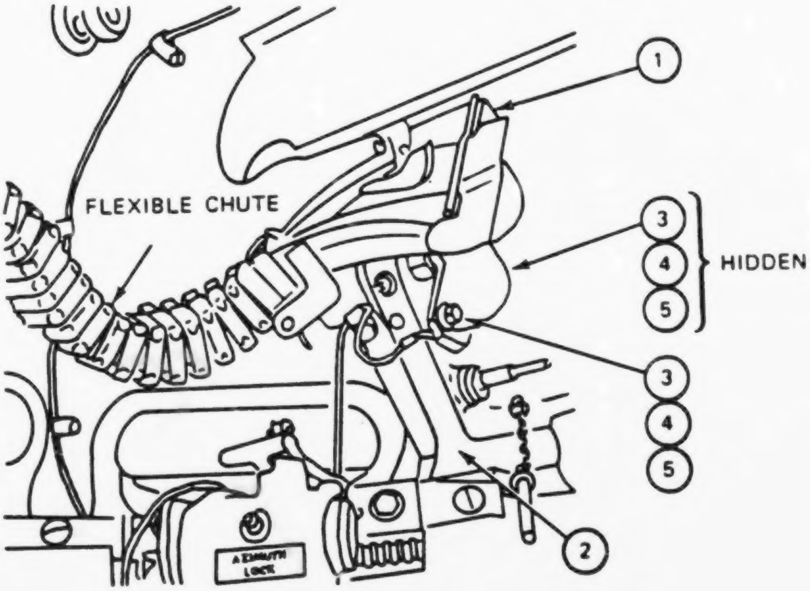
## 36-85. AMMUNITION FIXED FEED CHUTE INSTALLATION PROCEDURE (CONT)

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Using socket wrench, attach fixed chute (1) to cradle (2) with two screws (3), two lockwashers (4), and two flat washers (5).<br>END OF TASK |

**NOTE**

When positioning Fixed Chute Assembly make sure it is alined with feedway of machine gun.


FLEXIBLE CHUTE
1
3
4
5
HIDDEN
3
4
5
2
AZIMUTH LOCK

## Section 18. COMMANDER'S CONTROL PANEL

### 36-86. MAINTENANCE PROCEDURE INDEX

| Equipment Item | Tasks<br>Removal | <br>Installation |
|---|---|---|
| Commander's Control Panel | 36-87 | 36-88 |

## 36-87. COMMANDER'S CONTROL PANEL REMOVAL PROCEDURE

TOOLS: 7/16" combiantion wrench

PERSONNEL: One

REFERENCES: JPG for procedure to disconenct electrical connections

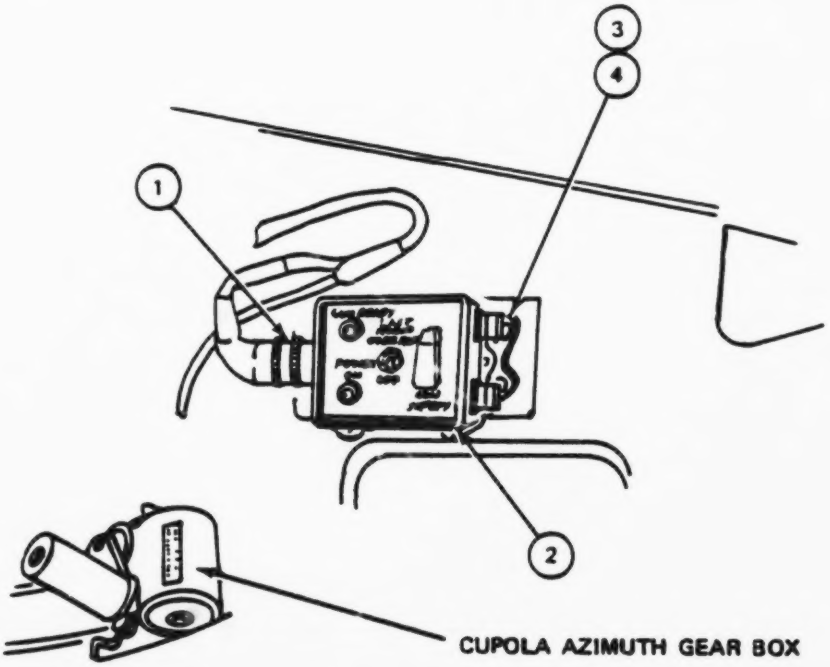
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Disconnect electrical connector (1) from commander's control panel (2) (JPG). |
| 2. | Using wrench, remove four screws (2) and four lockwashers (4). |
| 3. | Remove commander's control panel (2). |
|  | END OF TASK |



## 36-88. COMMANDER'S CONTROL PANEL INSTALLATION PROCEDURE

TOOLS: 7/16" combination wrench

PERSONNEL: One

REFERENCES: JPG for procedure to connect electrical connectors

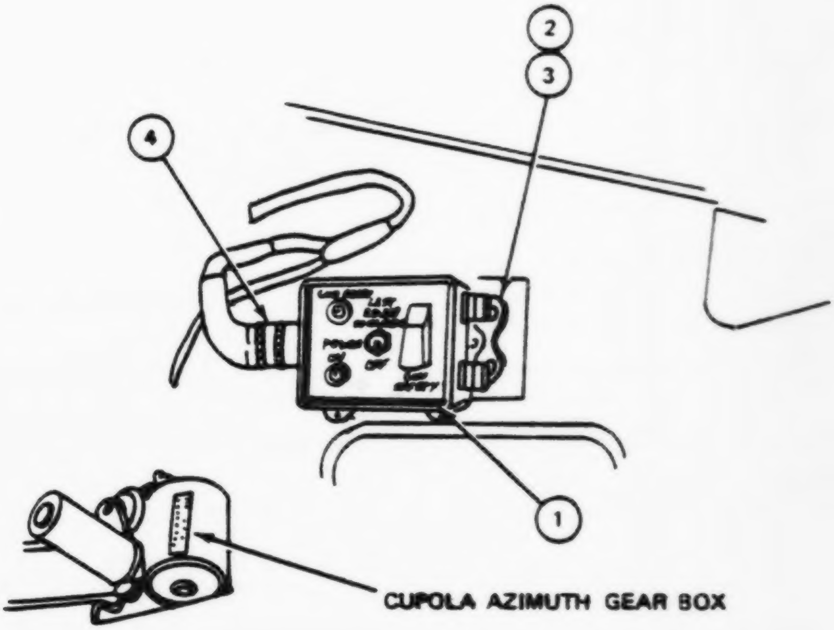
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Cupola Azimuth Gear Box | FO-2 | 17 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 1**

| Step | Procedure |
|---|---|
| 1. | Using wrench, attach commander's panel (1) on its mounting bracket with four screws (2) and four lockwashers (3). |
| 2. | Connect electrical connector (4) to commander's panel (1) (JPG). |
|  | END OF TASK |



## Section 19. LAST ROUND STOP SWITCH

### 36-89. MAINTENANCE PROCEDURES INDEX

| | Tasks | |
|---|---|---|
| **Equipment Item** | **Removal** | **Installation** |
| Last Round Stop Switch | 36-90 | 36-91 |

### 36-90. LAST ROUND STOP SWITCH REMOVAL PROCEDURE

TOOLS: Crosstip screwdriver (Phillips)

PERSONNEL: One

REFERENCES: JPG for procedure to disconnect electrical connectors

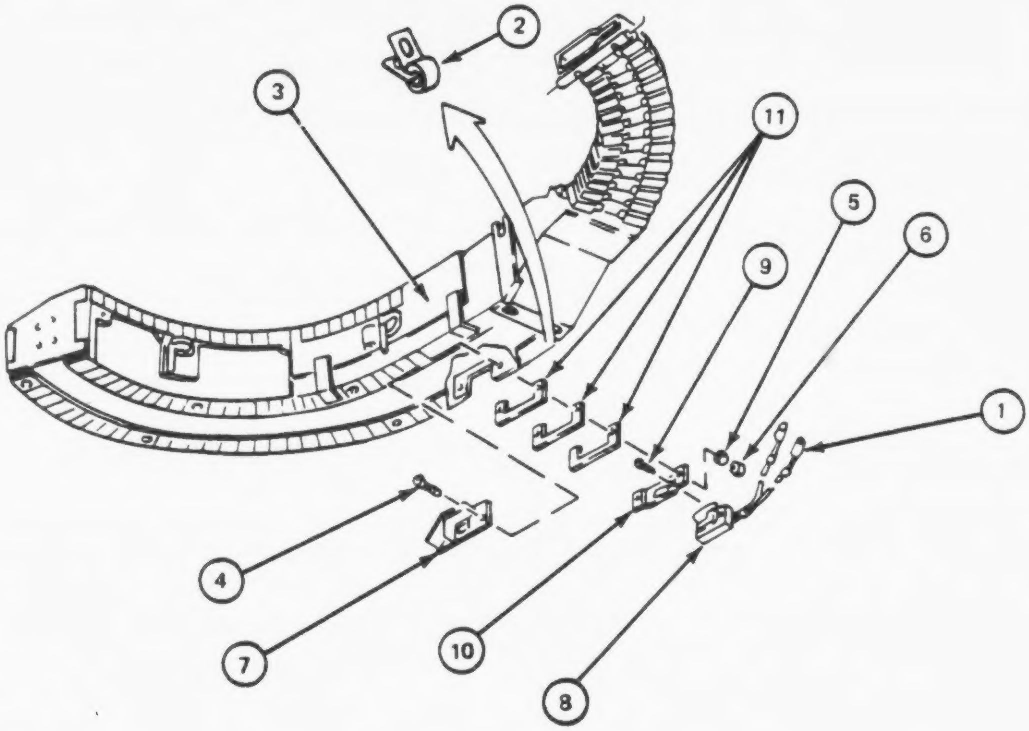
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Flexible Chute | FO-2 | 20 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 2**

| Step | Procedure |
|---|---|
| 1. | Disconnect two cables (1) from cable connectors 1W13P4 and 1W13P5 (JPG). |
| 2. | Using screwdriver, remove wiring harness clamp (2). |
| 3. | Open ammunition box door (3). |
| 4. | Using screwdriver and wrench, remove two screws (4), two lockwashers (5) and two nuts (6) holding buttonguard (7) to last round stop switch (8). |
| 5. | Using screwdriver, remove two screws (9) holding last round stop switch (8) to bracket (10). |
| 6. | Remove last round stop switch (8), bracket (10) and shims (11). |
| | END OF TASK |



## 36-91. LAST ROUND STOP SWITCH INSTALLATION PROCEDURE

TOOLS: Crosstip screwdriver (Phillips)
11/32″ open end wrench
Tape measure

PERSONNEL: Two

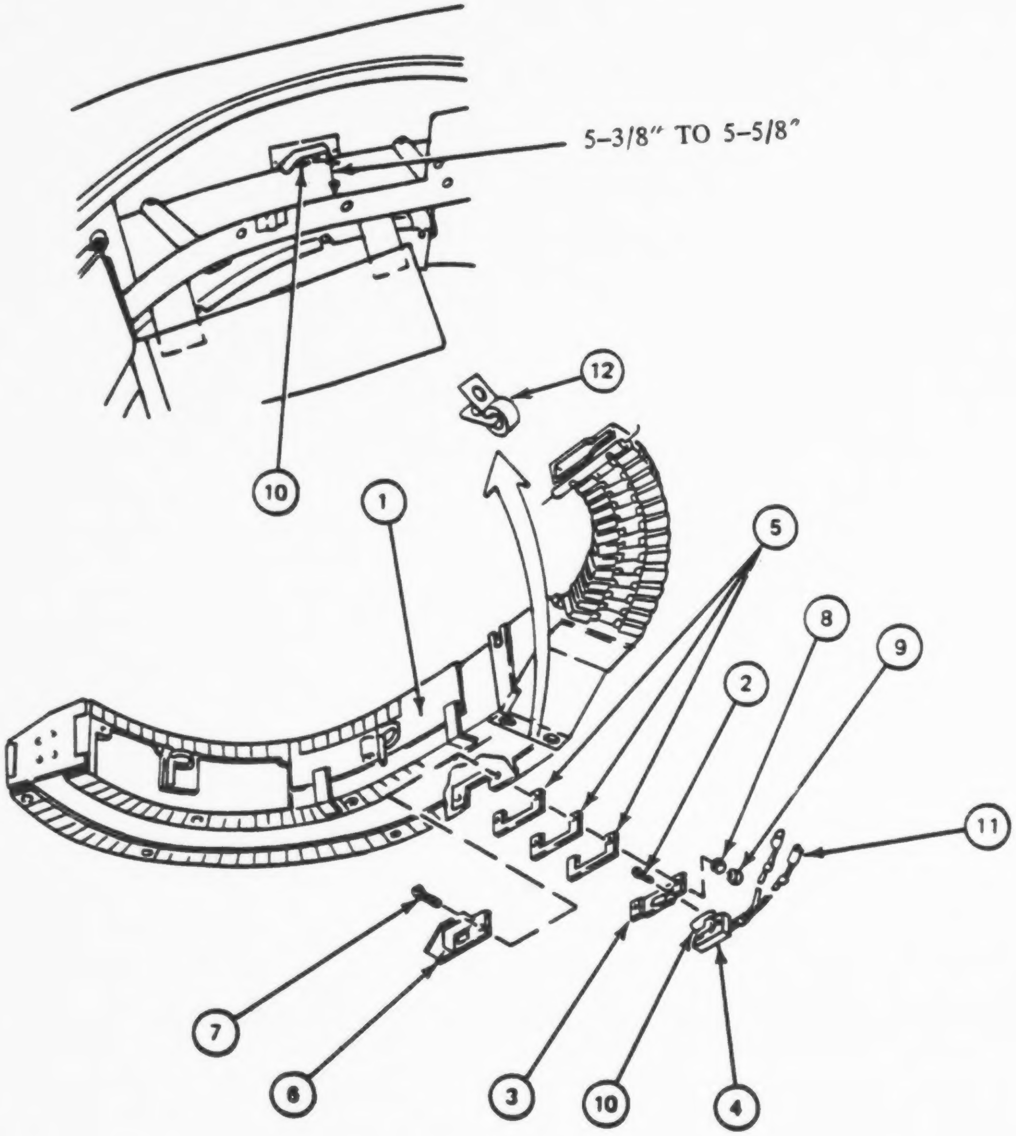
REFERENCES: JPG for procedure to connect elecrical connectors
EQUIPMENT LOCATION INFORMATION:

| EQUIPMENT | FOLDOUT | CALLOUT |
|---|---|---|
| Driver's Master Control Panel | FO-3 | 11 |
| Flexible Chute | FO-2 | 20 |

EQUIPMENT CONDITION: Driver's master control panel MASTER BATTERY switch set to OFF

**FRAME 3**

| Step | Procedure |
|---|---|
| 1. | Open ammunition box door (1). |
| 2. | Using screwdriver, put in two screws (2) holding bracket (3) to last round stop switch (4). |
| 3. | Soldier A: Hold shims (5) bracket (3) and switch (4) in place against outside of ammunition box. |
| | Soldier B: Using screwdriver and wrench, attach button guard (6), shims (5), bracket (3) and switch (4) to ammunition box with two screws (7), two lockwashers (8) and two nuts (9). |
| 4. | Using tape measure, measure distance between ramp button (10) and inside edge of ammunition box. Distance should be between 5-3/8″ and 5-5/8″. |
| | **NOTE**<br>If distance obtained in step (4) is not between 5-3/8″ and 5-5/8″, remove or install shims (3) as required to obtain necessary distance. |
| 5. | Connect two cables (11) to cable connectors 1W13P4 and 1W13P5 (JPG). |
| 6. | Using screwdriver, install wiring harness clamp (12). |
| 7. | Close ammunition box door (1). |
| | END OF TASK |


5-3/8" TO 5-5/8"

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| 109 | | 51 | | Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished. |
| 2-8 | | | 2-1 | Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl. |
| 12 | 1-6a | | | Since there are both 20- and 30-round magazines for this rifle, data on both should be listed. |

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Technical Manual

# ORGANIZATIONAL MAINTENANCE MANUAL

## VOLUME III - PART 2

## MAINTENANCE TURRET

## FOR

## COMBAT ENGINEER VEHICLE,

## M728 (2350-00-795-1797)

TM 9-2350-222-20-2-3-2, 15 September 1980, is changed as follows:

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| 36-1 thru 36-4 | 36-1 thru 36-4 |
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## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

### WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

### LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

### SQUARE MEASURE

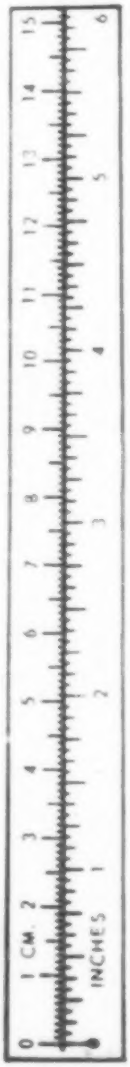
1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

### CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

### TEMPERATURE

$5/9\,(^{0}F - 32) = {}^{0}C$
$212^{0}$ Fahrenheit is equivalent to $100^{0}$ Celsius
$90^{0}$ Fahrenheit is equivalent to $32.2^{0}$ Celsius
$32^{0}$ Fahrenheit is equivalent to $0^{0}$ Celsius
$9/5\,C^{0} + 32 = F^{0}$



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|---|---|---|
| Inches | Centimeters | 2.540 |
| Feet | Meters | 0.305 |
| Yards | Meters | 0.914 |
| Miles | Kilometers | 1.609 |
| Square Inches | Square Centimeters | 6.451 |
| Square Feet | Square Meters | 0.093 |
| Square Yards | Square Meters | 0.836 |
| Square Miles | Square Kilometers | 2.590 |
| Acres | Square Hectometers | 0.405 |
| Cubic Feet | Cubic Meters | 0.028 |
| Cubic Yards | Cubic Meters | 0.765 |
| Fluid Ounces | Milliliters | 29.573 |
| Pints | Liters | 0.473 |
| Quarts | Liters | 0.946 |
| Gallons | Liters | 3.785 |
| Ounces | Grams | 28.349 |
| Pounds | Kilograms | 0.454 |
| Short Tons | Metric Tons | 0.907 |
| Pound-Feet | Newton-Meters | 1.356 |
| Pounds per Square Inch | Kilopascals | 6.895 |
| Miles per Gallon | Kilometers per Liter | 0.425 |
| Miles per Hour | Kilometers per Hour | 1.609 |

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| Centimeters | Inches | 0.394 |
| Meters | Feet | 3.280 |
| Meters | Yards | 1.094 |
| Kilometers | Miles | 0.621 |
| Square Centimeters | Square Inches | 0.155 |
| Square Meters | Square Feet | 10.764 |
| Square Meters | Square Yards | 1.196 |
| Square Kilometers | Square Miles | 0.386 |
| Square Hectometers | Acres | 2.471 |
| Cubic Meters | Cubic Feet | 35.315 |
| Cubic Meters | Cubic Yards | 1.308 |
| Milliliters | Fluid Ounces | 0.034 |
| Liters | Pints | 2.113 |
| Liters | Quarts | 1.057 |
| Liters | Gallons | 0.264 |
| Grams | Ounces | 0.035 |
| Kilograms | Pounds | 2.205 |
| Metric Tons | Short Tons | 1.102 |
| Newton-Meters | Pound-Feet | 0.738 |
| Kilopascals | Pounds per Square Inch | 0.145 |
| Kilometers per Liter | Miles per Gallon | 2.354 |
| Kilometers per Hour | Miles per Hour | 0.621 |